113, 502, 805, 821

Nomoi	OR14
Puluwat	OR17
Southwest Islands	OR18
Ulithi	OR20
Woleai	OR21
Yap	OR22

/For information on native astronomy in the central Carolines, especially the Sidereal Compass, and the Calendar and Almanac, see 18: Goodenough, OR19 Truk, category 116./

"Some of the native experts--which is to say, in this case, the 'captains' or navigators of seagoing canoes--have ways of driving off unpleasant or dangerous weather. One day when it looked very black to windward we heard the sound of a conch-shell horn. Out on a stone pier that projects into the lagoon, seated facing the storm, was our interpreter, acknowledged to be the leading navigator of the island. He was alternately blowing the horn and gesticulating as if waving the storm aside. Although we could hear nothing, it seemed that a spell or incantation ought to go with the gestures. It did, and long after he dictated it to me,--a great favor, for such incantations are not generally known, indeed are rather carefully kept secret, and taught only to fellow-captains who pay for them with suitable presents. A translation of part of the incantation follows:

Dark clouds, the horn!
My god-invoking horn!
My talk goes to the clouds like fire. [11]
Turn aside, wind and cloud!

Bad weather, turn aside!
Die away, move away!

The spell was supposed to act on the rain like fire, and drive it away. That time it worked 'like a charm', --which, of course, it was. The next time he tried it, it failed completely. He did not seem disturbed. Fire does not always win over water. His feeling seemed to be that the incantation had a certain amount of power, which might or might not be enough in a particular case. It was always worth trying.

In spite of magic, during the latter part of the west-wind season and sometimes the early part of the trade-wind season, wind sets in too strongly from the west, uprooting trees and taking the thatch off houses. At worst, it develops into a typhoon. A bad one sends waves clear over the island, carries away houses, and, what is worst, destroys food-bearing plants. The consequences of such a typhoon are vividly pictured in an old song:

Men are taking wing;
Flying in all directions
To islands where there is food, and trees standing.
. . . . . .

Let them go, we will stay on.
At least we will have rain to drink.
. . . . . .

Not many are staying.
The others can't stand it without shade.
Never mind, the rain will pour down on us,
And we'll find some shade
Under the little trees that are left.
Purak bushes will spring up on the beaches.
. . . . . .

Now the food is nearly gone.
We watch each other eat.
Look up, and there are no trees,
Here, where it used to be so fine."

"The mast [KS: of a canoe] is supported to windward by a shroud running from the masthead to a hole in the middle of the yoke which connects the two outrigger booms directly over the float. Fore and aft it is supported by a running stay attached in the middle to the masthead and at the ends to the projecting endmost thwarts. The sail is let in and out by a sheet attached to the boom, much as in sails of European type. To shorten sail in case a squall threatens to capsize the canoe, the boom can be raised by means of spilling lines reeved through the masthead. *

In order to change to the other tack in beating to windward, or to make any sharp turn of more than a right angle, the canoe does not go about like European sailing craft, but changes ends. This is quickly done, while the canoe swings toward the new direction,

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"* This rig is shown, more clearly than words can do it, in some of the illustrations in Haddon and Hornell; particularly Vol. 1, Figs. 269 and 270. Fig. 268 shows more clearly the shroud from masthead to yoke, but the sail is either in the wrong position or is of a different type from that used in Ifalik. Abb. 150 on p. 53 of Damm's book shows how some of the lines are attached to the mast. But the artist who redrew Sarfert's sketch made the mast too long and the apex of the sail too high, like a European lateen, rather than an Oceanic one."

by the following procedure: raising the boom to shorten sail, unfastening the apex of the sail, swinging the sail around the mast to leeward, and stepping the apex in the other end. This converts what was the stern into the bow. The steersman takes his post in what was the bow, which now becomes the stern. The boom is lowered, the sheet let out. The sail catches the wind, and the canoe moves off in the new direction. Obviously, the reason for this procedure is to keep the outrigger on the windward side, and so balance the vessel against the sidewise pressure of wind on the sail.

For maneuvering in shallow water, sailing canoes use the same equipment as small paddling canoes; paddles and even poles, though poles are rather for staving off coral heads than for propulsion, as the large canoes avoid water shallow enough for poling. The paddles have round, straight shafts, without knobs or other elaborations at the top, and lanceolate blades. These taper symmetrically from a low ridge along the middle to thin edges. At the tip, in most paddles, the middle ridge is extended and slightly expanded (Fig. 14, c). The protruding knob or spike helps to prevent the blade from splitting when the paddle is used for poling or staving off an obstacle; though such use is avoided, if there is time to seize a pole.

In open sea, canoes are kept on their course by a quarter rudder (Fig. 14, b). It is shipped near the stern on the leeward side. The line through the hole in its upper part is made fast to the projection of the stern thwart on the opposite side. The direction of the blade is regulated by the handle. To hold the lower part of the blade against the

side of the canoe, the steersman has to sit on the gunwale with one leg over the side. For this reason, steering at sea is an awkward and strenuous task. [63]

The quarter rudder not only steers the canoe, but cuts down drift like the sideboards sometimes fitted to small canoes in the United States when they are sailed.

The hulls have a total height of four or five feet, and when loaded draw from two to, at most, three feet of water. Lacking a keel, or even the flattened leeward side of some other Micronesian canoes, they can sail close to the wind, and drift rather badly. This seems to be the main weakness of the canoes, otherwise admirably fast under sail, and seaworthy for their size. One of the chief worries of a native navigator is that he may drift off his course unless he has a following wind, and miss entirely the small, low island which is the only destination he can have within three or four hundred miles of Ifalik."

1: Burrows--64 (1947-48) Woleaians
116, 487, 502 Ifalik

"The ancient art of navigation in native sailing canoes is still in use on the seas about Ifalik. Most of the voyages are short, between neighboring islands. Probably more than half of the traffic in and out of Ifalik is with Woleai, only 30 miles away. Yet trips to any of the islands within 100 miles are not unusual. And though longer distances, as to Yap, Truk and Guam, are now ordinarily left to foreign steamers or airplanes, sailing directions for them, too, are still remembered. Tom, whose claim to be the foremost 'captain' of Ifalik seemed to be generally acknowledged, said that he could still reach any of those islands by the old methods. However, he owns two compasses, and knows how to use them from his long service on foreign ships. He would supplement native lore by taking one along."

1: Burrows--65-66 (1947-48) Woleaians
116, 502-773 Ifalik

"The lore of navigation, like the similarly specialized and restricted knowledge of canoe-building, gains dignity and authority from myth, wherein its origin is attributed to gods. Befitting its position as the most esteemed of these specialties, navigation has not one myth [66] but several. Tattooing might make the same claim, since that art is ascribed to the god Wolfat, who is also the hero of several other tales. But tattooing is mentioned in only one of the Wolfat tales, and that apparently a minor or restricted one; for the chiefs, in giving Wolfat tales to Spiro, did not include the one about tattooing. The myths about navigation, however, all focus on that special lore. Navigation has, too, a greater number of gods than any other specialty. And these gods are owners or rulers of particular islands. One of the islands is supposedly on earth, near Puluwat; but the largest and most fertile part of it is underground. Another one or more are in the sky."

. 1: Burrows--66 (1947-48) Woleaians 1-2
116, 502, 173 Ifalik

"In beginning one of his greatest favors to me, that of imparting the lore of navigation or 'talk for cap'n', Tom gave a sketchy genealogy of the gods of navigation. Aluluei is the oldest and the only one with any distinctive physical attributes. He has four eyes, two in his face like those of mortals, and two in the back of his head. With the eyes in the back of his head he can see any dangers that threaten the navigators under his care.

Aluluei has three brothers: Metseleilag
Teraolemetau
Farewai

He has also four sons: Paluelap
Farewai
Valur, later known as Sagol
Wëriëng

When asked about the name Farewai, which occurs both as that of a brother of Aluluei and as that of a son, Tom said that the son was a different Farewai. That may be the traditional version. Yet he did not seem to have this genealogy very clearly in mind, and may have made a mistake. If so, I probably made another in questioning him immediately. It may have put him on the defensive, in which case, he might try to justify what he had said rather than correct it. (In one of the myths, Farewai teaches weather lore to Longolap and Langorlk, whom Tom there called his 'nephews').

Paluelap, elder son of Aluluei, went to Ponape and took a wife there. Her name is no

longer remembered. They had two sons: Longolap
LongorIk
and a daughter, whose name also is no longer remembered. In fact one of the characteristics of this lore about a man's occupation is that none of the women mentioned in it have names."

1: Burrows--66-67 (1947-48) Woleaians
116, 502, 539 Ifalik

"The myths in Tom's 'talk for cap'n' follow, in the order in which he gave them. In one or two places, as noted in parenthetical comment, some other order would seem more logical. Indeed, the whole episode of magical canoe-building by Seilangi, god of shipwrights, seems to belong with the lore of canoe carpentry rather than that of navigation. If Tom [67] had been asked, it may be that he would have accepted such changes. But it seemed that a more accurate picture of native thinking would be given by not questioning his original version, thus giving native tradition precedence over a foreigner's notion of logic."

"1. How the Lore of Seamanship Came to Ifalik

The god Aluluei came to Bwennap, an island of sand with one wutu tree growing on it. Bwennap can be seen from Puluwat. He took a wife there, and they had two sons and a daughter. The older boy was called Longolap, the younger LongorIk.

Underneath Bwennap is a large, populous place, of which Aluluei is chief. A sister of his also lives there.

Aluluei, who was the greatest of navigators, began to teach his lore to his sons. One day Longolap came to his father and said he wanted to take a wife. Aluluei objected, because if Longolap were to marry, he would spend too much time with his wife, when he should be listening to the lore of seamanship. But Longolap was set on marrying, and finally had his way. After that, he spend [sic] a great deal of time with his wife, and did not come back and listen to his father for many days. At last he came again, but only learned a little bit.

LongorIk, the younger son, did not want to marry. He stayed with his father, and learned all about seamanship.

One day LongorIk told his father he wanted to cut a breadfruit tree and make himself a canoe. He took his adz and went out in the land below Bwennap, where there were plenty of trees of all kinds.

On the way to the breadfruit grove LongorIk met Longolap.

'Where are you going?'

'I am going to the grove to cut a breadfruit tree, to make myself a canoe.'

'I'll go along and help you.'

So they went together to the grove, selected a tree, felled it, and worked all day hewing it into shape. By evening they had the job well along. Then LongorIk went home to his father, and Longolap back to his wife.

In the morning they returned, only to find the tree standing, with all the chips back in place, and nothing to show that any work had been done on it. They felled it again, and worked all day hewing it into shape. By evening they had the job well along. Then LongorIk went home to his father, and Longolap back to his wife.

Aluluei asked LongorIk 'Is your canoe nearly finished?'

'Yes.'

On the third morning LongorIk set out again, but this time Longolap did not go with him. Coming to the tree, he found it once more standing, with nothing to show for all their work. [68]

This time LongorIk did not set about felling the tree again, but went back to his father. He said to Aluluei:

'Isn't there something about the lore of seamanship that you haven't told me?'

'What makes you think that?'

'Why, every day we fell a tree and work away hewing it to shape. When we go back

in the morning, there it is standing, with nothing to show that it ever felt the edge of an adz.'

'Oh! So that's it! Tell me, did you see a bird while you were working?'

'Yes.'

'Well, you go back and get to work again, and when you see the bird, talk to it.' And Aluluei told his son how to greet the bird.

LongorIk went back to the grove, felled the tree again, cut off a length of four fathoms, and was hard at work hewing it to shape when the bird flew toward him, uttering the high trilling spund that gods make.

LongorIk greeted the bird with the prolonged cry his father had taught him: 'Va irōu!'

At this the bird changed to the form of a man. It was Seilangi, god of canoe carpenters.

'Oho! That's better!', the god said. 'I think you didn't know me before. Who told you who I am?'

'It was my father, Aluluei.'

'Very well. Go back and tell your family that the canoe is all finished.'

So LongorIk went and told his family.

'Finished so soon?' Aluluei asked him.

'Yes.'

So Aluluei told the women to plait a pandanus mat sail for the canoe. Meanwhile

Seilangi summoned his people, the ants. They finished the canoe in one day, mast and all, except for the sail, and carried it into the water.

When LongorIk came and saw his fine new canoe, Seilangi asked him:

'Is the sail finished? ' [69]

'All finished. '

'Bring it along. '

So LongorIk brought the sail, and it was quickly bent on.

Then LongorIk told his family to make him plenty of food. He said to his father:

'I want to go to your land, Pie li Eluluei (Sands of Aluluei.)

'Very well. But take care! You will come to a place where they eat people. Follow my instructions exactly. When you come close to shore, and a man asks you 'Shall I anchor your canoe for you? ', don't let him do it! Anchor it yourself. Then when they show you fresh water to bathe in, you will see two pools. One has fine, clear water, the other has dirty water. Be sure to bathe in the dirty water.

'Another thing: before you go to sleep, cut pieces of white coconut meat and tuck them under your eyebrows. Then when someone comes and looks at you he will see a gleam like the whites of your eyes, and will think you are wide awake. And finally, while you are there you must ask the people for a big stone that belongs to me. '

But before LongorIk was quite ready to go, his brother Longolap came to him and said:

'Don't you go this time! Let me go first. You can come later.'

So LongorIk let his elder brother take the canoe and go first.

Longolap set out. He only knew a little bit. But he got to the Sands of Aluluei, and there found his father Aluluei, who had come by magic, sitting under the lone wutu tree that grows there. Seilangi had come along, too, in the form of a sandpiper.

Longolap chanted the chant he had learned, to bring his canoe safe home, and set out on the return voyage. He came to another island. As he drew near shore, a man called out to him:

'What are you doing here?'

'I am going to the land of Aluluei.'

'Whose son are you?'

'Aluluei's son.'

'Very well. Let me take your anchor rope, and I will anchor your canoe.'

Longolap, who had not heard his father's instructions, let the stranger take the rope. The man tied it about a big mweial shell under the water. [70]

Longolap went ashore to the Men's House. A man asked him if he wanted to bathe, and offered to show him fresh water. He and his sailors went with the man, who showed them two pools, one of fine, clear water, and the other of dirty water. Since he only knew a little bit, and had not heard his father's instructions, he bathed in the fine, clear water.

Then Longolap came back to the men's house. Tired after their voyage, he and his men were soon asleep. While they were sleeping, the men of that land came upon them, seized them, and put them into the rounded end of the house, where the roof overhangs. They had this walled off like a separate room. They did not kill Longolap and his men. But the one who had anchored the canoe went and unfastened it, took it out to sea, set it adrift, and then returned.

Back home in Bwennap, LongorIk worried about his brother and wanted to go and find him. For that he needed another canoe. He went into the woods, thinking over his problem, and there met Seilangi.

'Do you want another canoe?'

'Indeed I do.'

'Well, just go back and tell your people to make the sail.'

LongorIk told his people, while Seilangi and his ants finished the canoe in one day, as before, and put it into the water. When the sail was bent on, LongorIk came and told his people to prepare plenty of food for the journey.

He sailed to the Sands of Aluluei, and there was his father waiting for him.

LongorIk and his sailors came ashore, tired and hungry. LongorIk said to his father: 'We want something to eat.'

Aluluei said: 'Look about this land. There are no coconut trees here, no taro. How can you eat?'

LongorIk answered: 'You find something.'

So Aluluei talked to his people underground, as if on the telephone. The women down there got together wot and pulax. The men climbed trees and got coconuts. They brought a great feast for LongorIk, then went back under the sands.

LongorIk said to his father: 'I want to go and find my brother Longolap.'

'Very well. Go. But do not forget any of the things I told you!'

'I won't forget.' [71]

LongorIk sailed on and came to land. He went through the pass into the lagoon and was nearing shore when the man who had deceived his brother called out:

'Give me a rope so I can anchor your canoe!'

'No, you go back ashore', LongorIk replied. 'I'll take care of the anchor.'

And he tied his canoe to a coconut tree.

He went into the Men's House, and the men of that place asked him 'What did you come here for?'

'I came for the big stone that belongs to my father, the stone of Aluluei. Is it here?'

'Yes. It is here.'

'I'd like to go and bathe.'

'You'd better let some of us show you where.'

Some of the men guided him and his crew to the water. They urged them to bathe in the fine, clear water, but LongorIk refused, and he and his men bathed in the dirty water.

Then they went back to the Men's House.

Longorlk told his sailors not to go to sleep yet. He had them prepare coconut meat and put it under their eyebrows, so that when they had to go to sleep that night, the people would think they were awake. The men of the place came during the night, but thinking they were awake, did not attack them.

In the morning Longorlk told the people he wanted to go back home.

'Can you bring me my father's stone?'

'Yes, but it will take all of us, men, women, and children, to haul it. It is very heavy.'

'Well, if you'll bring it to the shore today, I'll go tomorrow.'

So the people went into the interior and tugged and heaved at the stone. They could barely move it; but they kept at it, inching it along toward the shore.

When they were all at work, Longorlk went back to the Men's House. He hewed through the wall that closed off the rounded end, and found his brother and the crew that had come with him.

Longolap muttered drowsily 'What are you doing? I want to sleep.'

'Are you sleeping or are you dead?' [72]

'Just sleeping.'

'Well, you'll be dead if you stay in here much longer!'

He took them all to his canoe, untied the mooring line, and put out to sea, leaving the

people of that land tugging and heaving at the big stone.

When they came to the Sands of Aluluei, LongorIk went ashore and talked to his father.

'Did you bring your brother back?'

'Yes.'

'You see, it's just as I told you. Longolap doesn't know the lore of seamanship. He only knows a little bit.'

'Let's go back home now.'

So LongorIk went back to Bwennap, taking his brother with him in the canoe, while Aluluei went back by magic, and was waiting for them when they arrived.

They came ashore, and Longolap went to his wife. LongorIk, who had no wife, went home to his father.

(The episode that follows seems quite distinct from the story of Longolap and LongorIk. Logically, it might well precede that story. But Tom gave it as the conclusion to what has gone before.)

One day, early in the morning, a canoe came to Bwennap. It was a big canoe, but had no sail. It was propelled by paddles. In it were three gods: Valur, god of fish; Wĕriĕng, god of birds; and Segur, god of navigators.

Aluluei's daughter, who was bathing, saw the canoe coming and ran to her father, asking that food be prepared for the travelers. But the canoemen kept on paddling. The

canoe seemed about to pass the island without stopping.

The girl picked up a tiny coconut, no bigger than her fist, held it up, and called out to them to come.

'What for?'

'I want to go with you. I'll bring a coconut for you to drink.'

'All right. Bring it along.'

She waded out to the canoe with her coconut. When they saw the tiny thing, they said 'That is not enough.'

'Drink it anyway', the girl answered. [73]

One of the men in the canoe took the little nut and began to drink. He drank and drank until he had had all he could hold, but there was plenty of water left in it. He passed it to the next man, and so it went around, until all had drunk their fill. And still there was plenty of water left in the nut.

The three gods laughed with pleasure to find that the little coconut would hold so much water.

'Climb into the canoe', they told the girl. She got aboard.

They spread a chart before her.

'You see that? We are very grateful to you for bringing us that coconut, so we will let you have our chart. Look here. See all the islands? See all the birds? See all the fish? Take this, and give it to your father.'

The girl went back to Aluluei with the chart, and the canoe paddled on out of sight.

'What is this?' the girl asked her father when he had spread it out before him. 'I don't understand it.'

Aluluei understood it well, and was overjoyed to see it. Though he was a great navigator, there was much information here that he did not know. It had all the lore of seamanship: the positions of all the islands, and all the birds and fish that a navigator would see in voyaging from one to another.

Aluluei summoned the famous navigator Paluelap.

'Come look at this chart!'

Paluelap took it. He too could understand all that it revealed.

'Tell the people all that is on there. Teach them the lore of seamanship.'

So Paluelap began to teach the people. Many did not understand, but there were some who did. Thus the lore of seamanship became known in Bwennap. From there it spread to Puluwat and Souk. There it was learned by men from Satawan. From Satawan it came to Lamotrek, and so to Ifalik and Woleai and Faraulep.

That is how the lore of seamanship first came to Ifalik."

(1947-48)

"2. Why Valur Changed His Name to Sagol

Wĕriĕng went from Bwennap, where there was hardly any food except coconuts, to Truk, to get food for his wife. His brother Valur went with him. Now Valur had been carrying on a stealthy love affair with Wĕriĕng's [74] wife. So when they were out of sight of land, Wĕriĕng threw Valur overboard and sailed on, thinking he had got rid of him.

But Valur found a piece of floating bamboo, crawled inside it, and used it as a canoe to get back to Bwennap. He hid in his house, letting the people think he was in Truk.

Wĕriĕng got a supply of breadfruit, taro, and red turmeric paint, and came back to Bwennap. He told the people Valur had taken sick and died on the way to Truk, and that he had buried him at sea.

Wĕriĕng stayed four days in Bwennap. While there he prepared an offering of food for Iolau, a god of navigators. Iolau makes people sick if they eat wot taro without mashing it, or eat any of his seven kinds of fish: trep, tak, igolau, atek, lipĕre, gus, and apap. But Wĕriĕng knew a song to sing over the food, which would cause the god to take the curse off it, so that it could be eaten safely.

During the preparations for the feast, Valur got into a big food bowl, a fathom or more in length. Some women who were in the secret piled mashed taro over him, and brought the bowl to Wĕriĕng's house.

Wëriëng dipped his finger into the bowl, and Valur bit him.

'I'm not dead!' he shouted. 'Here I am!'

With that he stood up. Thus all the people knew that Wëriëng had lied when he said that Valur was dead. Wëriëng was shamed before the people.

Valur, in his anger, left Bwennap and came to Satawan, Lamotrek, Faraulep, Aurupik, Woleai and Ifalik.

He changed his name to Sagol, the name of the kind of bamboo he had used for a canoe when Wëriëng threw him overboard at sea."

"3. The Overconfidence of Longolap

Farewai understands the east and the west. By looking either at the morning sky in the west, he can forecast the weather--clouds, winds, rain, or fair weather. He taught this knowledge to his nephews, Longolap and LongorIk. Longolap only learned a little bit, but LongorIk learned everything.

LongorIk looked in the east and saw bad weather coming. Longolap looked in the west, and thought he saw fine weather. So in spite of his brother's warning, he put out to sea. A typhoon came, with torrents of rain, and broke in the hull of his canoe. Longolap was not drowned, but swam beside the wreck.

LongorIk looked at the sky and saw fine weather coming. So he made a big canoe. Then he took 2,000 coconuts, loaded the canoe with them, and went to look for his brother. His father, Paluelap, went with him. [75]

After a while they caught sight of Longolap, swimming beside the wreck of his canoe. They tied the 2,000 coconuts together, making a floating drydock of them. On this they placed the wreck of Longolap's canoe, and thus repaired it well enough so that he could make his way home in it.

LongorIk said to his brother 'See? What did I tell you?'

Longolap followed his brother's canoe back to their home. When they got there, Paluelap and LongorIk told Longolap he had better stay ashore thereafter. But he said

'No. I want to find the place where Aluluei lives.'

So he set forth again. He found the Sands of Aluluei. But there are two islands by that name. One is where Aluluei lives. The other is inhabited solely by sandpipers, who spend their time singing for the god. It was the island inhabited by sandpipers that Longolap found. When he saw that his grandfather Aluluei was not there, he went on.

There is an enormous taro growing in the ocean that belongs to Aluluei. A number of little taros grow close around it. Longolap came to this, and tried to get one of the little taros to eat. But in order to do this, it is necessary to sing a certain song, and Longolap did not know the song. So the ants of Aluluei bit him when he tried to pull the taro. He tried again and again, but at last had to give up.

Then for a long time Longolap saw no land, and had no food to eat. At last he came to a lone coconut tree, growing in the midst of the ocean. This, too, belongs to Aluluei. But in order to climb it a man must sing a certain song; and Longolap had not learned the song. So he could not climb the tree. Some of his sailors starved to death.

Again LongorIk came to the rescue and found him.

'What are you doing out here? You've been away from home a long time.'

At last Longolap had to admit that he did not know all he needed to know to succeed at seafaring.

'Come with me', said LongorIk. They came to the taro growing in the sea. LongorIk sang the proper song, pulled some of the little taros, and they had food to eat.

They went on and came to the lone coconut tree. Again LongorIk sang the proper song, climbed the coconut tree, and they had ripe nuts to eat and young ones to drink.

LongorIk said 'Follow me. I'll show you the way home.'

But Longolap, now that he was well fed, had regained his confidence in himself. He said 'No. You go where you please. I know the way.' [76]

LongorIk sailed directly home. Longolap cruised about on the sea for four months, and could not find the way. He and his sailors were so famished they could not walk.

Once more LongorIk came and found him. 'I will show you the way. If you do not follow me you will die.' And Longolap, once more driven to admit his ignorance, agreed and followed his brother.

When they reached home, LongorIk waded ashore. But Longolap and his men had to be carried."

1: Burrows--76-77 (1947-48) Woleaians 1-3
116, 502, 539 Ifalik

"This is not the place for a systematic analysis of these myths as examples of folklore. But a few striking characteristics are worth noting, if only to suggest some of the possibilities of such an analysis.

For one, the tales are developed to a considerable extent by repetition of incidents, one of the commonest devices in folk-tales. Examples of repeated incidents are: the tree twice restored after being felled and hewn; the two canoes built for LongorIk by Seilangi and his ants; the several voyages of LongorIk in search of Longolap; the anchoring of the canoe, choice of pools for bathing, and use of coconut meat to simulate whites of the eyes, on the cannibal island; the two visits to the huge taro and lone coconut that grow by themselves in the sea; and even such little phrases as the one about LongorIk knowing everything about navigation, while Longolap only knew a little bit.

One of the incidents in the first myth is widely distributed in Oceania, --the repeated restoration of the hewn tree by a god until he is properly placated, whereupon he builds a canoe out of the tree with miraculous speed. Frequently, as here, the god appears first as a bird. Beckwith, in 'Hawaiian Mythology' (pp. 272-3) notes the occurrence of this incident nearly everywhere in Polynesia; in one island generally classed as Melanesian (Mota of the Banks group); and in one Indonesian tribe (The Dyaks of Borneo). Probably several other incidents, such as the inexhaustible drinking nut, are also widespread.

In the story of Longolap and LongorIk, it is the younger child who is successful. This motif, 'youngest child successful', is world-wide. One variant of it is the incident of Cinderella and the glass slipper. Is this a piece of wish-fulfilment fantasy, a solace for younger children who are relegated to an inferior role? Such questions are easy to ask, but hard to answer with anything more trustworthy than a guess. A method of reaching rigorous scientific answers to such questions has yet to be developed.

Another outstanding characteristic of the two tales (or two variants of one tale?) about Longolap and LongorIk is that they serve to point a moral. This puts them in the category of fables, like those of Aesop. The moral here, or course, is: Don't let a woman distract you from your study of navigation.

Finally, all these myths have an inconsistency and shiftiness that give them a dream-like character. This shows up especially in comparison of [77] the myths with the 'genealogy', if it deserves the name, of the gods of navigation. In the genealogy Longolap and LongorIk are grandsons of Aluluei. In the myth they are his sons. In the genealogy Wërië̈ng and Valur are sons of Aluluei. In one of the myths they are strange gods from afar, who bring Aluluei the chart containing all the fine points about navigation. The other strange god does not appear in the genealogy at all.

The peculiar characteristics of the island Bwënnap reappear in the other island called 'Sands of Aluluei'. Both are sandy islands, with only one wutu tree growing on them. But underground, in both of them, is a large and populous realm, abounding with all

useful plants. Bwénnap is given a location in the Pacific. The Sands of Aluluei and the unnamed cannibal island are not located; but from Tom's statement that the gods of navigation live in a special part of the sky, I suppose that these islands may be thought of as in the sky. Yet canoes can reach them from Bwénnap.

Such inconsistencies and vaguenesses are of course not uncommon in folklore. The 'genealogy' looks a little like an attempt to pull the myths together and give them consistency; but if so, it is a very sloppy job. Evidently the custodians of these myths--that is, the navigators of Ifalik and the islands about--never got together and worked out an official, consistent version of them, as the priests of various other lands have done with their traditions.

After all, the myths serve what seems to be their main purpose without being precise and consistent. That purpose is to give the lore of navigation the dignity of divine origin. This wins respect for the lore of navigation and gives confidence in the navigators. Presumably the special connection of the navigators with the gods helps to preserve discipline aboard ship."

1: Burrows--77-78 (1947-48) Woleaians[1-3]
116, 502, 782 Ifalik

"Songs for Divine Guidance

Seven songs were dictated by Tom as part of the navigator's lore. They seem to be both prayers and incantations, if we define prayer as an appeal for help to a divine being, and incantation as a song thought to have magical power in itself. Each song is accompanied by a bit of ritual, which reinforces its meaning as gesture reinforces the meaning of ordinary speech. But these are not mere optional gestures. They are essential to the proper utterance of the song. This seems to give them the character of magic, credited with power in itself, rather than of religion, appealing to an outside power. Yet the ritual can well be thought of as obeisance appropriate to an appeal, like a bow or salute to a human superior. It is my impression that the natives do not make the distinction between the two, but regard this behavior both as what we call magic and as what we call religion.

The texts of the songs will be given in the study of native art. One of them is an appeal to Sautā, a god not mentioned in the myths, for wisdom. [78] He is asked to illuminate the navigator's mind by lighting a fire within him. As he sings this, the navigator rubs over his chest sand, mixed with sea water taken from the point where land and water meet. A similar song, using the same figure of lighting a fire but not naming any particular deity, is uttered while cutting off the bud end of a coconut and mixing the juice with leaves of aro.

A third song, which Tom said was particularly advanced and hard to get, is intended to lighten the canoe so it will stay afloat. It invokes Loulemwau, whom Tom called 'god of the canoe.' It is sung while the navigator, holding a ripe coconut in its husk, bound about with a strip of coconut leaf, wades around his canoe, tapping the hull at the water-line with the coconut.

An appeal for fair weather is sung to the god Wĕriĕng. To sing this, the captain goes aboard with a piece of white young coconut leaf. This he taps against the sail as he sings, then ties bits of it to all the lines of the rigging.

Before the mast is set up, it is swept with a strip of white leaf, while the navigator sings a song to Ilekerēp, god of the sea-lanes, asking him to bring the canoe safe to its port. A similar appeal for the return voyage is sung as the mooring line is untied from a tree, and rubbed back and forth against the landward side of the tree. In this song Soupalele, god of the navigator, is asked to anchor the canoe in the woods, in the center of the home island.

Far the longest and most comprehensive of the songs was described by Tom as his own special prayer for success at sea. It had been given by one of the gods of navigation--he did not know which one--to a navigator of ancient times, and handed down to his pupils from generation to generation ever since.

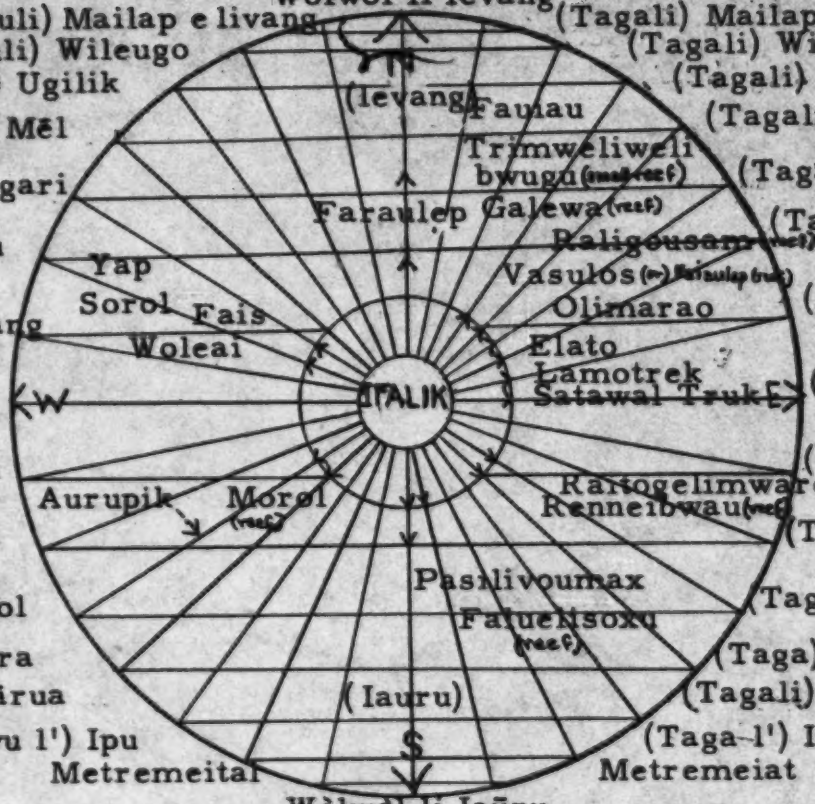
This song invoked not one god but a multitude of them, running up the number in a

final stanza from one hundred to ten thousand. It appeals for most of the gifts asked separately in the other songs: wisdom in seamanship, divine guidance of the canoe, strength and health for the navigator, fair weather, and shortening the distance between Ifalik and Woleai. As he begins singing it the navigator ties about his wrist a strip of white coconut leaf. He drinks a coconut for the gods, and offers a piece of taro and an umule fish."

1: Burrows--79 (1947-48) Woleaians
116, 502, 821 Ifalik

"For some reason, Sarfert was told that the old lore of navigation had been mostly forgotten. But the two best navigators of Ifalik were away at the time. He did collect names and positions of 28 stars, which correspond fairly well to the 32 given me; and some other details. However that may be, Tom had a remarkable amount of 'talk for cap'n' in his memory. The supernatural part of it has been given. What we would consider the practical part follows. Even this has many details that seem to us fantastic and impossible; notably the bits about sighting particular birds and fish at particular places. Some of the guiding stars named for certain islands, even, are not accurate, according to our charts. Yet conceivably they may serve the purpose, for some reason of wind or current. It is noticeable that the directions have not the vagueness and inconsistency of the myths. At any rate, canoes are able to reach neighboring islands most of the time, though being lost at sea is unquestionably one of the people's haunting fears. Directions for more distant points are little used and may be more dubious.

Fig. 16 shows the positions of the stars used for navigation in Ifalik; of the nearer islands and reefs; and a few of the more important ones at greater distances. Tom gave them to me from memory, but with a compass before us; and I wrote them down on sheets of paper with circles drawn on them like those on Figure 16, marked to show the points of the compass. This kind of notation was suggested to me by Tom's occasional use of English terms for points of the compass. He approved it, and at times supervised my notations closely, so far as directions are concerned."



"Fig. 16. -Star chart."

See next page.

1: Burrows--79-A (1947-48) Woleaians-2
116, 502 Ifalik

"Fig. 16. -Star chart. Names outside the circle are those of stars used in navigation. Taga means 'rises'; tubwu, 'sets'; li being the definite article. Horizontal lines indicate the paths of the stars across the sky. Inside the circle, the two words in parentheses indicate the most clearly conceived cardinal directions: (Ievang) north, (Iauru) south. Names inside the circle and not in parentheses are those of islands or reefs said to be reached by steering for the rising or setting points on the same radial line."

"Damm, from a sketch by Sarfert, shows positions of some stars on a rectangular figure. Undoubtedly Tom's approval of my use of circles came from his familiarity with the European compass. It is questionable whether natives unfamiliar with the compass would conceive the universe with either square or circular boundaries. What they would have in mind, pretty surely, is something corresponding to the horizontal lines of Figure 16, which represent the courses or paths of the stars from rising to setting. When I asked Tom what a navigator would do when his guiding star was not in sight, he said 'He must know the road for that star.' Damm, too, speaks of the road of a star (die Bahn dieses Sternbildes) and may be quoting, via Sarfert, a native expression.

To save space, the corresponding charts for other islands are summarized in Appendix I. This does not exhaust the lore in Tom's memory. After giving me the lists from several islands, he asked me whether I wanted them all. As the process was taking a good deal of precious time, I decided that lists from the nearest islands and from the three most important farther ones--Guam, Yap, and Truk--would do to illustrate the nature [80] of native lore and suggest the extent of it. How many more he could have given I am not sure. Perhaps not many; but I recall his speaking as if he knew a similar list from Puluwat, which seems to have been a center of particularly high development of native navigation. And probably he could have given several others.

It is noticeable that the lists from the farthest islands are the least complete and

exact. That for Guam, which because of the east-west direction of prevailing winds is the most inaccessible by sail from Ifalik, is the worst of all. Putting Europe north by west from Guam is the nadir. But in that Tom was, of course, departing from anything in native tradition. I suspect that the mistakes in locating Saipan and 'Nuta' (Rota?) from Guam are not errors in his knowledge but in his use of English. He was subject to lapses in which he would say 'south' for 'north', and vice versa. One such would account for these errors. In spite of this, the Guam list is not impressive. Yet the total amount of his memorized information, and the accuracy of a good deal of it, do speak well for native mental capacity."

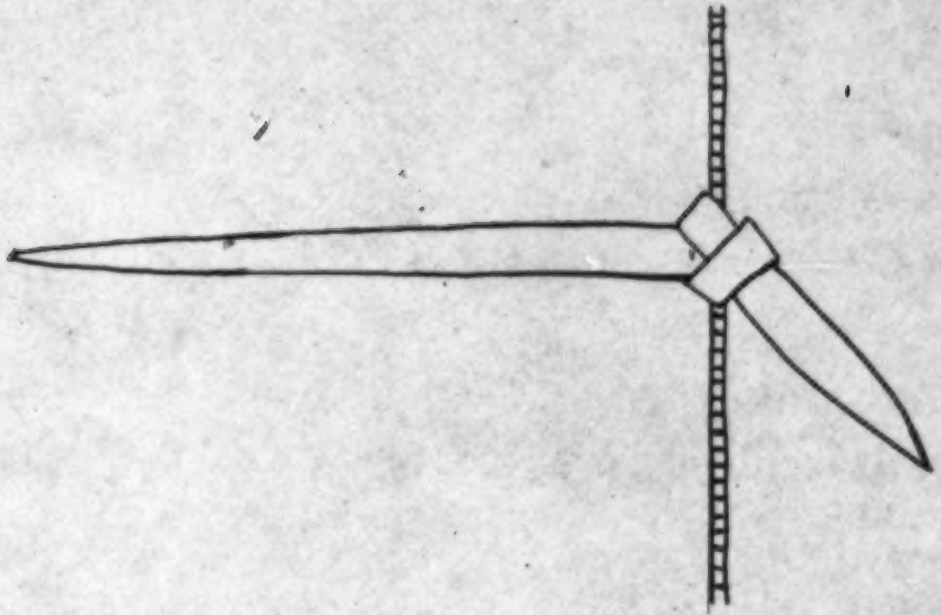
1: Burrows--80
116, 821, 132, 502

(1947-48)

Woleaians
Ifalik

"Stars as Weather Signs

Stars are used not only to give directions, but to indicate weather. Only a few of these signs were given. They may have some validity for seasonal changes. When the star Maileu (not used as a guiding star, hence not shown in the star chart) is high in the sky before dawn, winds will be light and good for sailing. But when Maileu hangs low over the sea at dawn, and the star Sota comes up before sunrise, winds will be dangerously strong. The star Rangalieli in the east presages good weather. When the star Ul rises before dawn (this would be Tagal'ūlu of Fig. 16), it is a good time for a voyage toward the west."



"Fig. 18. -Weather vane, lowered into the water to show the direction of the current."

1: Burrows--81-82 (1947-48) Woleaians
116, 502, 823 Ifalik

"Lore of Currents

On any voyage, as soon as the canoe is out of the pass and far enough from the island it is leaving to be clear of currents affected by that body of land, the direction of the current in the open sea is tested. First the sheet is let go and the sail left flapping until the canoe loses headway. Then several light lines, weighted with sinkers, are lowered over [82] the sides. Each has attached to it a strip of coconut leaf, as shown in Figure 18, to act as a weather vane. The lines are lowered until these strips are far enough below the surface not to be knocked about by waves, but are still in plain sight. The current will then swing them around until the longer end points in the direction in which it is flowing. The several lines provide a check on each other, and prevent the navigator from being misled by some accident, such as a swirl of water around bow or stern, that might affect one of the vanes.

The captain then picks his course to allow for the current. If, for example, the current is flowing from north to south, he will choose a guiding star farther north than the true direction of the island he is heading for. Thus he guards against one of his great perils, --drifting off his course (mennāxo)."

1: Burrows--82-83
116, 487, 502, 823

(1947-48)

Woleaians
Ifalik

"Detailed Sailing Directions

The following directions include, besides guiding stars, some further directions: a rear sight on Ifalik while it remains above the horizon; choice of guiding stars according to the current; and directions for recovering a destination which has been misled. In naming the stars in these more detailed directions, Tom omitted the prefixes tagali-or tubwuli-for rising or setting, and his example has been followed.

Ifalik to Woleai and Return

Guiding Stars- Ulu, a little north of west. If current is flowing north, Mailap, due west; if it is flowing south, between Ulu and Mwarigari.

Rear Sight- Keep Matolo, the channel between Falārik and Falālap, 'open'; that is, visible throughout its length. Keep the islet Ellā in such a position that 'two fathoms' of Falālap are visible to the south of it.

Birds- If the navigator drifts off his course and 'goes to Mailap' instead of to Ulu, passing south of Woleai, he will see two small black and red birds (gerap). He must 'leave them to the south'; that is, turn north from where he sees them.

If the canoe drifts north, and goes to Mwarigari instead of Ulu, two white sea birds (paiennai, bigger than a fairy tern) will be seen. They must be 'left on the south.' Woleai will not be far, but it will be necessary to have a lookout climb the mast in order to see it.

If the canoe continues on a course too far to the north, after leaving the paiennai birds, a shark will be seen of the kind called malrang, of the bright red color of turmeric face-paint. Then it will be necessary to take a course a little east of south ('east half south', Tom called it). [83]

Stars for Return Trip-The star indicating the true direction is Elieli. If the current flows north, take a course between Elieli and Mailap; if it flows south, between Elieli and Sarabwol."

1: Burrows--128-129 (1947-48) Woleaians
116, 502, 439 Ifalik

"It has been noted in the account of native navigation that canoes from Ifalik sometimes went as far as Truk to the eastward, or even farther. Whether these long trips accounted for most of the supply of rang [KS: powdered turmeric root used for body painting] from that direction, or whether most of it came by trading along the chain of low islands in between, is not clear. But certainly some of the supply from Yap was brought directly, in the course of the regular visits to the village of Gatschapar (Ifalik Garpar) in Gagil district, whose chiefs are regarded as overlords of Ifalik. The political aspect of these voyages will be considered in the chapter on government. As to the economic aspect, Fonachar of Yap told me that the people from outer atolls like Ifalik would bring cloths, mat sails and other pandanus mats, sennit rope, and coconut 'candy' (what he meant by 'candy' I could not make out). Yap gave in return, he said, rang, canoes of the larger and better timber available on the high islands, mats of Yap manufacture, betel nuts (but betel chewing is not customary on Ifalik), and foods not obtainable on the atolls, such as Tahitian chestnut. Since foreign vessels from the high islands have been making fairly frequent trips to Ifalik, most of the turmeric has been brought on them, though [129] the trade in it seems still to be in the hands of native sailors or passengers."

1: Burrows--163
116, 177, 502

(1947-48)

Woleaians 1-2
Ifalik

"Eastern Influence

The only story attributing important influence on Ifalik to an island farther east is that about the lore of seamanship (p. 67). The point of origin named in this myth* is Bwennap, said to be in sight from Puluwat. A version of this story is given in the German monograph on Woleai (Kramer, p. 285). The locality there is Polap, evidently what our charts call Pulap, ehich, judging by the charts, would indeed be barely in sight from Puluwat. And a footnote adds that on Lamotrek, Polap is called Bon'nap. This seems to locate the traditional origin of the lore of seamanship. Locating a mythical island may not be worth all that troublt; but ascription of the lore of seamanship to an island farther east does seem significant.

Names of two varieties of bananas ascribe to them an eastern origin; wIrIs Truk, Truk banana, and wIrIs Valupē. Valupē is said to be Ponape. The prized red paint made from turmeric root is said to have reached Ifalik in the old days by trade with either Yap or Truk. Tom used to translate the native name for it, rang, either as 'Yap paint' or 'Truk paint'. Texts of several love songs specifically mention Truk as

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"* The story about the lore of seamanship is called a myth rather than a legend because of its supernatural character and its function of explaining the origin of an institution.

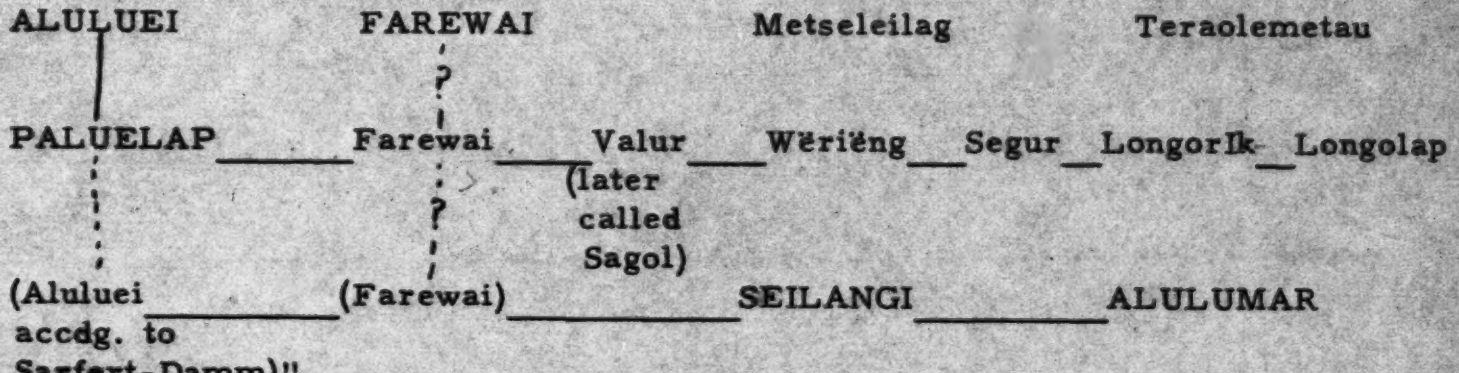
the source of this paint or of other finery: a loin-cloth, a comb. Other islands to the east are also mentioned in songs; among them Namoin (Nomoi).

From all accounts, native and foreign, the language spoken on Ifalik and neighboring atolls resembles that of islands to the east, at least as far as Truk, more than it resembles the language of Yap. If this is substantiated by adequate linguistic comparison, it will indicate relationship between Ifalik and islands to the east much more fundamental than the bits of diffusion suggested by the details just given.

What this eastern influence amounts to--its relative strength and age as compared with influence from Yap--could only be determined by a thorough cultural comparison beyond the scope of this local monograph."

"Fig. 23. - GENEALOGY OF THE GODS OF NAVIGATION

Parentheses and capitals are used as in Fig. 22. No names are underlined, as there are no females in this genealogy.



"Gods of Navigation

Aluluei - master of the lore of seamanship. His role in bringing it to Ifalik is recounted in the myths given in the chapter on Navigation. Said to have lived on Bwennap which, in spite of the underground extension attributed to it, seems to be identifiable with the earthly island Pulap. Other homes of his are (Sarfert-Damm) Piemal, far south of Ifalik; and Pie li Eluluei or Sand of Aluluei.

Paluelap - according to Sarfert-Damm, a son of Aluelap and father of Aluluei. According to Tom's genealogy of the gods of navigation, one of the sons of Aluluei. Figures in the myths of seamanship and is invoked in a ritual to be described later. The name means 'great navigator'. [177]

Farewai - divine weather forecaster. His genealogical position uncertain; there may be two gods of this name. The genealogy given by Tom makes him a brother of Aluluei, as does that of Sarfert-Damm. The same name appears also in Tom's genealogy as a son of Aluluei. This is another Farewai, Tom explained.

Metseleilag - Named in Tom's genealogy, without further details, as brothers of Aluluei.

Teraolemetau - Aluluei

Valūr - who changed his name to Sagōl - god of the fish who guide navigators. One of the sons of Aluluei. One of the myths about the lore of seamanship tells how he changed his name, after foiling the attempt of his brother Wĕriĕng to kill him.

Wĕriĕng - god of the sea-birds who guide navigators. Another son of Aluluei. Tried to

kill his brother Valūr, who had been carring [sic] on an adulterous affair with Wĕriĕng's wife.

Segur - another son of Aluluei. Associated with the other gods of navigation, but without any exclusive powers, so far as known.

Longolap - LongorIk - sons of Aluluei. In the myth of the lore of seamanship, LongorIk, the younger son, learned the lore thoroughly; but the uxorious Longolap, distracted by his wife, only learned a little bit, with disastrous results.

Ilekerĕp - god of the sea-lanes. Invoked in a navigator's prayer for guidance.

Sautā - invoked in a navigator's prayer for enlightenment.

Iolau - classed with the gods of navigation; but the only specific activity recorded of him is that he makes people sick if they eat wot taro without mashing it, or eat any of his six kinds of fish without first singing the proper song over them, to win his approval.

Loulemwau - god of the canoe. Invoked in a navigator's prayer or incantation to lighten the vessel so that it will stay afloat.

Seimeligarara - a god of canoe building. His building of the first popo canoe told in the myth of Galĕt.

SemerIk - a god of canoe-building. Not placed genealogically. Invoked in a shipwright's prayer.

Seilangi - another god of shipbuilding, coupled with SemerIk in the shipwright's prayer.

According to Sarfert-Damm, a brother of Aluluei. Not named in Tom's genealogy.

Seliwang - (Possibly a variant form of Seilangi.) These two are invoked in a song, to
Tibweau - help repair a canoe-hull which has come apart at sea, by fitting a rope sling about it.

Alulumar - god of house-carpenters. Here grouped with the gods of navigation because mentioned by Sarfert-Damm as one of the sons of Paluelap. Not named in the genealogy given by Tom.

Lauliăr - In ordinary speech, this is the name for rainbow. On Ifalik rainbows are thought to bring bad weather. Sarfert-Damm give this as the name of an anthropomorphic spirit who brings storms and destroys canoes at sea unless propitiated [178] by the proper prayer or incantation. Even this will not avail if the people, by their misconduct, have offended Aluelap."

1: Burrows--195 (1947-48) Woleaians
502 Ifalik

"For Aluluei, god of navigation, Sarfert found two emblems: a wooden anthropomorphic figure, and a conch-shell horn. Tom's mention of such wooden figures, and his statement that none exist on Ifalik any more, has been noted in the account of navigation. As senior navigator of the island, Tom owned a conch horn; and blew it while singing his incantation to ward off storms. But he did not mention its use in connection with invocations of gods of navigation, though he gave me the texts of a series of prayers of invocations to them."

1: Burrows--235-243 (1947-48) Woleaians
116, 487, 502 Ifalik I-13

"Appendix II. Further Sailing Directions.

A. Ifalik to Faraulep & Return

Guiding Stars - Wolwol, due north, indicates the true direction. But because of prevailing currents, take first Tagalemailepalevang (on the chart as (Tagali) Mailapelivang) for 4 miles; then Tubwulemailepalevang for 1 mile; then Wolwol. After following Wolwol for 1 1/2 miles, Faraulep should be sighted.

Rear Sight - Keep Ella just touching the northwestern tip of Falārik.

Bird - If a metalipangerāle, with long tail feathers, is sighted, the canoe is off its course. Then the star Ulu (whether rising or setting not stated) will bring it in to Faraulep.

Fish - If a shark is sighted, follow the star Metremeiat.

Stars for Return Trip - The star indicating the true direction is Wolwol. To allow for currents, take first Metremeiat for 4 miles; then Metremeital for 1 mile. From there, Wolwol will fetch Ifalik.

B. Guiding Stars, Faiau to Ifalik.

Metremeital for 5 miles; then Tubwulemetara (on chart as (Tubwu li) Metarua) for 2 miles; then Tubwul'Ipu for 2 miles. This will bring the canoe in sight of Ifalik.

C. Rear Sights for Voyage from Ifalik to Lamotrek.

Put Ella just touching the end of the long stone pier on Falālap.
On the return trip, put the islet Falaite just touching the north end of Valipi.

D. Courses from Yap to Ifalik, with Intermediate Stops

First course: 1. Yap to Ulithi; guiding star, Tagal'ulu.
2. Ulithi to Fais; Tagalielieli.
3. Fais to Woleai; Tagatumūra.
4. Woleai to Ifalik; Tagalielieli.

Second Course: 1. Yap to Sorol, Tagalielieli.
2. Sorol to Woleai; Tagalielieli.
3. Woleai to Ifalik; Tagalielieli.

Third Course: 1. Yap to Sorol; Tagalielieli.
2. Sorol to Eaurupik; Tagatumūra.
3. Eaurupik to Woleai; Tagalimēl.

To sail from Ifalik to Yap, the preferred course is by way of Woleai and Sorol. The star Tubwul'ūlu is followed the whole way.

E. Courses from Truk to Ifalik. [236]

First Course: 1. Truk to Satawan, Tubwulimailap.
2. Satawan to Ifalik, Tubwulimailap.

Second Course (recommended because gaps are shorter):
1. Truk to Puluwat; Tubwul'ūlu; (2 nights).

2. Puluwat to Satawan; Tubwulielieli; (1 night).
3. Satawan to Lamotrek; Tubwul'ūlu (1 night).
4. Lamotrek to Elato; Tubwul'ūlu (1/2 day; these islands are in sight of each other.)
5. Elato to Ifalik; Tubwulielieli; (1 night).

F. Courses from Ifalik to Truk.

First Course: Ifalik to Satawan, Satawan to Truk; Tagalimailap the whole way.

Second Course (recommended because distances are shorter).

1. Ifalik to Elato; Tagal'ulu.
2. Elato to Lamotrek; by day, in sight; by night, Tagalielieli.
3. Lamotrek to Satawan; Tagalielieli.
4. Puluwat to Souk; Wolwol. (Why this detour to the south?)
5. Souk to Truk; Tagal'ūlu. [237]

G. From Woleai.

Tagaliwileugo - Faraulep.
Tagalimailap - Vasulos (reef).
Tagalielieli - Ifalik.
Tagalitumūr - Moroe (reef).
Tubwulitumūr - Aurupik.

Tubwusarabwol-Bugueluelu arem (reef). On the way, one man o' war bird.

Tubwulūlu-Sorol.

Tubwulimwarigari-Ulithi.

Tubwulimēl-Fais. (One of the Ifalik dance songs, the Peiran of Falālap, disagrees. According to its text, the star Tubwulimwarigari will bring a canoe from Woleai to the rock Rimwelivarougoue in Fais.)

H. From Faraulep.

Tagalimailap e li vang -Saipan.

Tagaliwileugo - 1 fish, gapile.

TagaliugilIk - 1 big fish - seu etag.

Tagalimēl - Faiau.

Pauievang - Kalūa (small reef).

Tagalimailap - Religousām - (reef).

Tagalielieli - one man o' war bird, (called in 'captain's language' neurevas.)

Tagatumūr - Trimaliwelibwugu (reef); farther, Olimarao.

TagalIpu - 2 whales, ualeliga jewetoxu.

Metremeiat - Vasulos (reef).
Wolwol li Iaūru - Ifalik. [238]
Tubwul'Ipu - Woleai.
Metārua - 20 porpoises, guatrIk.
Tubwulielieli - 1 bird with long tail-feathers, metalipangerele; Sorol.
Tubwulimailap - 1 whale, ualimen.
Tubwul'ūlu - 1 red fish, ig i seram; Fais.
Tubwuwileugo - 1 shark, trImeijou, with 2 small fish, sIlelīa, ' under his arm'; 2 big black diving birds, igotōro.
Wolwol li Ievang--many small black birds, asuval; Guam.

I. From Faiau.

Tagalimailap e li vang - Trilial (tinian).
Tagaliwileugo - Saipan.
Tagalimel - Tipipi (uninhabited island).
Tagal ' ūl - Tipapa (uninhabited island).
Tagalimailap - Getūa.
Tagalipauiaūru - 1 shark, laigelalo; his head keeps coming out of water.
Tagalielieli - Pigela (uninhabited island).

Tagatumūra - Satawan.
Taga limetārua - Lamotrek.
Tagal'Īpu - Elato.
Metremeiat - 1 shark, with 1 man-o'-war bird over him, saumātol.
Wolwol li Iaūru - Olimarao.
Metremeital - 4 whales, nāgmetau.
TubwulIpu - Vasulos (reef).
Tubwulimetārua (? designation undertain) - Ifalik
Tubwulitumūra - Faraulep.
Tubwulielieli - 1 shark with 2 small fish 'under his arm' - shemeijo.
Tubwulimailap - Fais.
Tubwul'ūl - 1 large fish with black head and white tail, tagural.[239]
Tubwulimēl - Vasielus (reef).
Tubwuwileugo - 1 white man-o'- war bird, gapilē.
Wolwol li Ievang - Guam

J. From Lamotrek.
Tagaliwileugo - 10 small fish, linked together like a chain - fātaleimware.
TagaliugilIk - Pigello (small uninhabited island, many turtles - Pikelot?)

Tagalimēl - Uraiseivetāl (small reef).
Tagal 'ūlu - Pigennot (small uninhabited island, many turtles - Pikelot?)
Tagalipquievang - 20 big porpoises; very bad, will try to crush canoe.
Tagalimailap - Puluwat.
Tagalielieli - Satawan.
Tagal'Īpu - many birds, tepāl, with strong odor.
Mętręmeiat - 1 whale, uauumaiaūru.
Wolwol li Iaūru - 2 pagennai birds, called in captain's language lairomwara.
Tubwulipauiaūru - Ifalik
Tubwulimailap - Olimarao.
TubwuliugIlĪk - Faiau.
Tubwuliwileugo - Faurĕp (reef).
Tubwulimailapliievang - RŭtIk (reef).

K. From Olimarao. (Two versions were given of this. Intended to supplement each other, they disagreed at some points, as noted.)
Tagaliwileugo - many porpoises, called in captain's language naigām.

Tagaliugllīk - black mwili birds, called in captain's language pongenor.
Tagalimēl - Tipapa.
Tagalimegarigari - (other version - many mweli birds, called pongulōr.) [240]
Tagal'ūlu - Pigella (uninhabited island).
Tagali pauievang - (other version - Pigella).
Tagalimailap - Pigennot.
Tagalielieli - Lamotrek.
Tagatumūra - Elato.
Tagalīpu - 2 paugennai birds, called aurovālu.
Wolwol li Ievang - 1 commop shark and 2 very small white sharks called laorumetau.
Metremeital - MIsailealu (reef).
Tubwul'Ipu - Ororang (reef).
Tubwulitumūra - Weraitogelimware (reef).
Tubwulisarabwol - Ifalik (? one version dubious, as Aurupik is south of Ifalik.)
Tubwulielieli - Aurupik.
Tubwulipauiauru - Ifalik (? one version).

Tubwulimailap - Woleai; Vasulos, one version; other has next star south for Vasulos.
Tubwulipauievang - Gautā, (reef).
Tubwul'ūlu - many porpoises, called in one version Falepeipeilalai; in the other Misailiealu, which the other uses for a reef under Metremeital.
Tubwulimwarigari - 40 fish, arōng.
Tubwulimel - SImweliulibwugu (reef); farther on, Faraulep.
Tubwuliwileugo - many small porpoises, uouwelinIran
Tubwulimailipelivang - OratIk (reef), one version; other has Galuā, apparently a little farther sw, under a star for which no name is listed.
Wolwol li Ievang - Farāp (reef), 1 version; other has Rajeivetāl, and, farther on, Faiau.

L. From Satawal (Satawal-aito).

(This list as given contained only directions toward the east. Two for the nearer islands to the west, however, were given 'in reverse' with the list for those islands - Lamotrek and Faiau - and are added here.)

Tagatumūra - Orejeivetan (reef). [241]

Tagaaarabwol - Souk (Pulusuk?).
Tagalielieli - Oroural (reef).
Tagal'ūlu - TruatalevalerIk (reef); farther on, under same star, Truataligapelalei (reef); still farther, under same star, Puluwat.
Tagal'ugIlīk - Pënënnot (Pikelot? Recorded elsewhere as Pigënnot). From Pëgënnot, the star Tagalielieli will lead to the reef Autaxileor, thence to the reef Autailemetau, and thence to Bwënnap. From Pegënnot, Tagatumūra will lead to Puluwat. From Bwënnap, TubwulIpu will lead to Puluwat.

M. From Yap.

Tagaliwileugo - Gaverot, island; 'steamer and canoe come close, go down in water.' (The name is virtually the same as Gaferut, which is about n. n. e. (?) from Ifalik, but about e by s from Yap.
Tagalimegarigāri - Ulithi.
Tagalielieli - Sorol.
Tagal'Ipu - Tongelap (reef).
Wolwolliiaūru - Ngolu (Ngulu)

Tubwul'Ipu - Gologol (reef).
Tubwulitumūra - Palau.
Tubwulisarabwol - Olāt (long reef).
Tubwulimailap - Philippines.
Tubwulimēl - 1 shark, ugelingaj.
Tubwuwileugo - 1 fish, sōm, whose dorsal fin slants toward the head instead of toward the tail; also seaweed, lem.
Wolwol liievang - 1 whale, walimIl, with many white birds perching on it,

N. From Truk.

Tagaliwileugo - 1 big man-o'-war bird, arIgemoa.
Tagalimēl - Pish (inhabited island).
Tagal'ūlu - Tennōmar (sandy island, with low trees and many fish).
[242]
Tagalimailap - Falepei (Ponape).
Tagalipauiaūru - Losap.
Tagalielieli - Leme.
Tagatumūra - Gotū.
Tagalimetārua - Satawal-airek (called Satawan on our charts; the suffix distinguishes it from Satawal-aito farther

west, near Lamotrek, which is called Satawal on our charts.

Tagalīpu - Namoluk ('Mortlock', Tom explained).
Wolwolliievang - Pelap ('much surf')
Metremeital - 1 whale, called uauemaiauru.
Tubwul'īpu - Pijemware.
Tubwulimetārua - 1 fish, lāgvIt.
Tubwulitumūra - 1 big shark, Oleleimwal, will crush a canoe.
Tubwulielieli - Souk. (Pulusuk?).
Tubwulimailap - Puluwat.
Tubwul'ūlu - Tamtam.
Tubwulimēl - Bwennap
Tubwuliwileugo - Oloulo ('atoll, white men live there').
Tubwulimailap elivang - Faiau-aiat (East Fayu?).
Wolwol li Ievang - Namoin (Nomwin?).

O. From Guam.

Tagaliwileugo - Pāgang (Pagan?).
Tagalimēl - Songorol ('no more people').
Tagal'ūlu - Tipipi.
Tagalipauievang - Tipapa.

Tagalielieli - Saipan.*
Tagaliṣarabwol - Nuta (Rota?).*
Tagatumura - Trilial (Tinian?).*
Tagal'Īpu - Lamotrek.
Mẹtrẹmeiat - Elato. [243]
Wolwol liiauru - Faiau.
Tubwul'Īpu - Faraulep, Ifaluk
Tubwutumūra - Woleai
Tubwulielieli - Yap.
Tubwulimailap - Philippines.
Tubwuwileugo - 1 white man-o'war bird, called Vālemerizu.
Tubwulimailapelivang - Europe. "

"* These were given by points of the compass instead of stars. It seems likely that Tom said 'south' in these cases when he meant 'north'."

2: Damm et al. --39
502

(1909) 1938

Woleaians
Ifaluk

Compasses were unknown.

2; Damm et al. --45 [2] (1909) 1938 Woleaians
116, 502, 463 Ifaluk

In 1909 the knowledge required for seafaring was no longer preserved. Not one of all the men on the island knew how to sail by the stars. Only one had a vague idea about trips to Oleai, Faraulip and Lamutrik, but that was all that he knew. According to the islanders, there were still two experienced Ifaluk captains on Yap and Ngulu. Under these circumstances it was impossible to make a sailing chart.

2: Damm et al. --45-49 (1909) 1938 Woleaians-1-3
116, 502, 821 Ifaluk

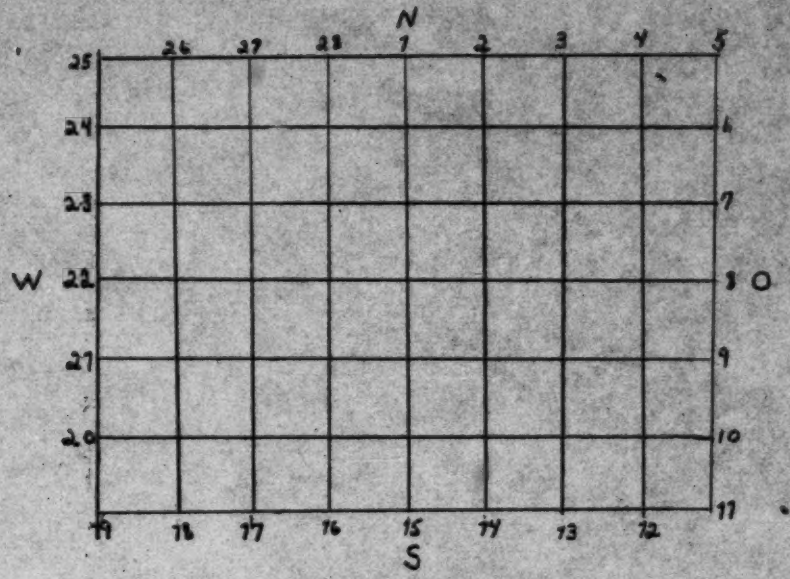


Fig. 143. Compass Rose (sketch by Sarfert).

A knowledge of the stars is the basis for all nautical information. The natives knew the following stars: (fŭs).

mōl	Lyra	eruol	Three Kings (in Orion)
ugelĭk	Orion	dumul	Virgo
măriger	Pleiades	djerewol	Raven
ŭl	Aldebaran	lup	
măilŏb	Eagle	wolewole	
gŭi	Fish, an enormous star, which travels all over the heavens; ugelĭk and erüŏl belong to it. [46]		
lăke		dagalĭp	
dŏbi		mōlărŭ	
ĭdj		măidjĭk	
mălu		ălalimĕi	Milky Way

măl̆ăm moon, the natives knew about the man in the moon, or Liganós: but they had no more exact information about him. The sun had no significance, whatsoever. Sarfert did not give a native term for it. They had no conception of the stars; the Yap inhabitants had told them that they were stones! Shooting stars - jajāle fŭs.

Drawing 143 shows a picture of the compass rose; the horizon was conceived in a rectangular form; point 1 is the place where a star rises in the vicinity of the polar star;

it sinks in number 15, so line 1-15 represents the course of this constellation. The same is true of the other constellations. [47]

Drawings 144, 145 show the position of the stars in the heavens at various times; when Altair goes down , and when it is at the zenith.

The natives know the following directions:

north	jífaṅ	northwest	ilodolífaṅ
south	jǒr	northeast	kodolífaṅ
west	ilodǒu	southwest	ilodolijǒr
east	jǒdou	southeast	kodolijǒr

[AN: the terms for the directions of the winds, pages 47-49 of source have been omitted.]

2; Damm et al. --49 (1909) 1938 Woleaians
116, 502 Ifaluk

The sailing trips, which are still known are:

Ifaluk - Oleai 9-23 of the compass rose.
Ifaluk - Faraulip 1-15 of the compass rose.
Ifaluk - Elato-Lamutrik 21-7 of the compass rose (Lamutrik is visible from Elato!)

Sarfert said that in olden days the natives also dealt with Satoan, which was settled by Ifaluk people, who came by way of Lamutrik.

Only one ship was known to have got off its course; the Hamburg South Sea Expedition saw the arrival of an Ifaluk canoe on Élato; coming back from Faraulip the boat was driven to Olimarau.

The nautical knowledge of the Aurepik islanders is not inferior to that of the other Caroline natives, for example the Polowat men. Sarfert's authority, Captain Wasäu, had visited all the islands between Ngulu in the west, and Satowal in the east, in his canoe; he had also sailed to the Marianas (Guam, Rota, Tinian and Saipan).

The heavens (star is fūis)

1.	Eagle	mâilōb	9.	Three Kings (in Orion)	elūel
2.	Aldebaran	ūl	10.	Raven	serewŏl
3.	Pleiades	măregīr	11.	Virgo	dūmur
4.	Procyon	măl	12.	?	medărū
5.	Orion	ugelĭk	13.	?	dagalĭbu
6.	?	wŏlago	14.	?	madje - măidŏl
7.	?	măilŏb barăwăn	15.	?	wŏlewol - elĭbu
8.	?	wŏlewŏl			

The moon is măräm (new moon - lūgulaŏli măräm, full moon woninäbäli măräm, waning moon - äliolăn, waxing moon - jaurugili măräm).

Fig. 222 shows the Aurepik compass. Numbers 1-15 give the starting points of the stars in the preceding list, and with the same numbers; 16-28 show where they disappear below the horizon (compare Damm and Sarfert, 1935, page 89). [132]

The names of the points of the compass are:

north	jíwaṅ	northwest	lodoăwäṅ
east	chodŭ	northeast	chodoăwäṅ
south	jŏr	southwest	lodoăr
west	ilodŏ	southeast	choduŏru

2: Damm et al. --133 (1909) 1938 Woleaians
116, 502, 463 Aurupik

The courses [CS: omission of sailing voyages, pages 132-133] show how well informed the Aurepik Captains (damól ídit) are. They certainly sailed east as far as Kusae (native name Chatáu)and Ponape, which is called Wulebéí here; perhaps they went even farther; to the north they traveled to the Marianas and to the west to the Philippines (Dawogán). According to the native accounts, Dawogán lies south of Chatowei, * and it is supposed to be much larger and higher than Truk, Yap and Palau. We can not say definitely how far south they had travelled.

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* This is certainly Tobi; the map of the Polowai Captain Igurälli proves it; (compare Damm and Sarfert 1935, drawing 205).

2: Damm et al. --133 [2] (1909) 1938 Woleaians
116, 175, 502 Aurupik

The natives had nothing to say about people, who had been blown off their course and drifted. But we can read about them. The missionary Snelling was adrift for 93 days in a native boat which he had taken from Piherar; he finally reached Aurepik and then went on to Oleai. Damm and Sarfert, 1935, page 108, tell about a canoe from Aurepik, that was blown to Hok.

There was naturally little material available about their nautical information. Among the stars (star - foi-l) they knew the

polar star -	olūol	Eagle	mailop
?	uolāgor	Three Kings	
?	ugeliga	(in Orion)	ɓliɓl
Procyon	mål	?	ɬarawūon
Pleiades	maraegiri	Virgo	tumur
Aldebaran	oūl	?	metarū
?	matjomáidan	?	tubulūp

2; Damm et al, - 173
116, 502, 778

(1909) 1938

Woleaians
Faraulep

Krämer obtained an old string pouch with snail shells; it belonged to the head chief, and was considered to be holy. It hung from the ridge pole of the canoe house, and was supposed to have been used to teach navigation in former times; the snail shells represented islands (or stars?).

2: Damm et al. --173-174 (1909) 1938 Woleaians
116, 502 Faraulep

The compass rose (drawing 249) is on the same pattern as the one in Polowat. [CS: Omission of the native terms for the various points.] [174] The wind directions are:

etők e lap	wind from the west
xotón e mái	wind from the east
eáur u láp	wind from the south
efáń e láp	wind from the north
xotóu a fáń	wind from the northeast
netó a fáń	wind from the northwest
xotóu eáur	wind from the southeast
netó eáur	wind from the southwest

From the east and the west the sea is called la e lapaláp; from the south it is la e l'eáur, from the north la el'efáń.

2: Damm et al. --175 (1909) 1938 Woleaians
116, 502, 484 Faraulep

Hambruch only heard about one boat, that drifted; it was an empty one, which came from Pur about five years before (about 1904). People were certainly blown off their course, although Hambruch did not hear of any instances of this. Kadu, Chamisso's authority, told about a Faraulip chief, who wanted to sail to Guam, but who was blown to Mogemog; he went home from there.

4: Krämer--122 (1909) 1937 Woleaians-1-2
116, 776, 502 Lamotrek

In connection with the canoe...it has been mentioned that Alúluei is the god of the navigators.... There he is referred to as the son of Paluelap and is called Alului, whereas on Truk he is thought to be identical with Aluelap. In other instances it has been claimed that he is identical with Paluilap. I learned that in addition to five gods there existed seventeen auxiliary navigators. Their names are:

Gods:

Alúelap	Olofat
Lugeileng	Alúluei
Eidjal	

Auxiliary Navigators:

1. Alulápelap	7. Sābug
2. Maselëlog	8. Fágara
3. Tarailemetau	9. Olopëlipen
4. Vórieng	10. Madjebol
5. Faludj	11. Lëbútobut
6. Gapiumolefádj	12. Uman

"Pandanus fruit"

Carpenters:

Legedjilab	Sëlang

4: Krämer--122 (1909) 1937 Woleaians-2
116, 776, 502 Lamotrek

Semèligóror Meseisseit
Semeligodjúat

The large number of spirits is to be explained by the fact that every navigator has his own spirit, whereas Luluei is common to them all.

4: Kramer--123 (1909) 1937 Woleaians
116, 502 Lamotrek

Teachings of navigation: Similar to those on Pollap. Canoes drifting in rain and wind recognize the direction of the current from the great north-eastern ground-swell, 16lablab, and from the south-eastern and north-western ground-swell which raises and lowers the canoe at the points in question.

Unsuccessful Voyages: In spite of the extensive knowledge of currents and stars...it is not a rare occurrence that canoes are thrown off their course, especially when the ground-swell has been changed by storms and the sky is overcast. One story tells that a year before our presence on the island, two canoes had sailed to Faiau to fish for turtles but the boats were shipwrecked. Six months before this accident, a canoe had set out for Oleai and Faroilap but had never arrived. Others that were considered lost: Uleisap with the canoe Falegarorong, two boats from Ifaluk, and one from Oleai.

Voyages: to Oleai and Ifaluk are undertaken at the end of November (bale aremoi...); the return voyage is made between July and September. If the destination was Guam, the canoes first took their course to Pikelot and then 3-4 course NNE-E and then NNW; in the latter position many birds are observed and as the boat follows them, the Marianas are soon sighted.

4: Krämer--123 (1909) 1937 Woleaians
115, 502, 484 Lamotrek

Chamisso learned the following from Kadu, after he had talked of some unsuccessful voyages...(see Kotzebue, Entdeckungsreise, III, page 94:) "Every year more Carolinians sail to Guajan. Their flotilla of boats from Ulea and the surrounding groups, from Lamureck and Setoan, is assembled in Lamureck. From here the voyage starts in the month of April. From Lamureck to Fayo, the deserted island on which one stops over for a few days, the voyage is expected to take two days and from Fayo to Gajan three more days. The return voyage is again by way of Fayo and Lamureck. It falls in the month of May and at the latest in June, before the west monsoon that may be dangerous sets in."

Below he continued: "It was in this year (1807) or the following that a canoe of the eastern island of Tuch (Truk) drifted to Guajan. The canoe carried a crew of 15 and the name of the pilot was Kulingan. The strangers were received hospitably, but a procession which happened to be held during the days of their stay and which was accompanied by salvoes of artillery weapons caused fear and terror among them. They hid in the forest and that very same night, though without all necessary provisions, returned to the ocean. --It was their good fortune that as they fled from the island they happened to meet the arriving flotilla from Lamureck which provided them with food and gave them instructions about the voyage home. In the year 1814, the flotilla counted 18 boats. On Guajan the Carolinians exchanged iron, glass beads, and textiles, for canoes, shells and rarities; trepang transactions may develop into an important branch of their trade."

Hambruch learned on Elato that the following stars served as guide-stars on voyages to these islands:

Faraülip	möl	Vega
Ifalük	uliul	Orion's Belt
Uleai	between üliül and mai i lop	Orion's Belt and Altair
Auripik	zare u ol	Corvus
Sorol	ul and margaregir from Uleai	Aldebaran and Pleiades
Fais	tagal e mâl lap a ie fan from Sorol	βursi minoris (rising)
Mogemog	tubul e mailop a ie fan	βursi minoris (setting)
	tubul e uelego from Sorol	Ursus major (setting)
Yap	tubul e zare u ol	Corvus (setting)
Ngulu*	tubul bup	Southern Cross (setting)
Palau	zare u öl from Ngulu	Corvus
Yap--Sorol	tagai i tumul	Antares (rising)
Mogemog—Fais	tagal i uliül	Orion's Belt (rising)
Fais-Uleai	tagal i tumul	Antares (rising)
Fais--Faraulip	between tagal i zare uol and uliul	between Corvus (rising) and Orion's Belt

*From Yap: i Centauri.

4: Krämer--124 (1909) 1937 Woleaians-2
116, 502 Elato

Faraulip--Uleai	tubul bup and meta riu (eye two)	Southern Cross (setting) and Scorpion
Faraulip--Ifaluk	uliul and matsumelit	Orion's Belt and (middle of the sky) Southern Cross, Southern tip
Lamutrek--Satoan	mai i löp, uliul	Altair, Orion's Belt
Lamutrek--Poluat	mai i löp	Altair
Lamutrek--Truk	mai i löp	Altair
Lamutrek--Sog	tubul bup	Southern Cross (setting)

This is the extent of Hambruch's information.

4: Krämer--126-127 (1909) 1937 Woleaians
116, 175, 502 Lamotrek

In the London Nautical Magazine of 1862, the well-known report of Rev. L. H. Gulick on Micronesia (page 174, Ulie-Wolea) was published and in the year 1866 (beginning the preceding year) there appeared a report of Captain B. Eugenio Senchas y Zayas of the corvette "Narwaez (Viaje de la corbeta de guerra Narwaez desde Manila a dichas islas), of the first steam-boat which was seen out on the high seas. In it he also reports on the settlement of the Carolinians. . . . In Garapan on Saipan they formed a colony of 415 heads (in January 1864, 433 were counted). At the very time when the captain and his ship were in Tinian Carolinians arrived from Elato-Lamotrek; they came aboard to see him and related their surprise at what they had seen. They were very muscular people, their entire bodies oiled and almost naked; in their ears they wore shell ornaments. On Saipan, where the captain visited the colony in Garapan, he heard a great deal about the navigation of these [p. 127] courageous people. They first had come to Agaña in search of new land, because their own had been devastated by the typhoon. For all their islands, with the exception of Ilap, were very low. Arumiat was considered their best navigator who knew all the stars and that the Polar Star does not change its position and that the rising and setting of Orion's Belt indicated east and west. He rejected the compass claiming that it was dispensable for navigation. For the stars in the zenith, a bamboo stick filled with water was used.*

*Cf. Samoa, where one goes all the way down into the hull of the ship in order to observe three stars.

4: Krämer--17 (1909) 1937 Woleaians
116, 396, 502, 288 Lamotrek

In Garapan tere was a shipyard where the Carolinians could learn the construction of boats; connected with the shipyard was a school of Carolinian navigation. Anyone who wanted to e independent and in charge of a boat had to pass an exam before a council of pilot. Close by was a rope-making establishment. There the material for the ropes-to-b was hung high on a palm tree and the strands were twisted and each one had a circmference of 4-5 inches. Ropes were made up to a length of 100 fathoms.

Anchors do not exist. If it is necessary to fasten a boat, one of the crew jumps overboard and belays one end to a rock. A similar procedure is followed when the canoe is to be cleared for departure. The islanders do not worry about deep water and sharks.

The boats built had a length of 30 feet in the keel, a width of four feet and a depth of 6 1/2 -7 feet from the deck to the keel, with a draught of 2 1/2 feet front and aft. The stern-post strakes are alike, and the bow and stern are identical in shape. No nails are used in the construction; the planks are fastened together by means of strong coconut yarn and the holes are stopped up with cement. The frame-planks are less than one half inch in thickness and do not have any ribs. All the work is reinforced by strong dollboard gunwales of considerable size; they are connected by thwarts, all of them in the same height. The two sides are different in form and one is more beautiful than the other. They do not attempt any tacking with these canoes. The weatherside is fuller and more rounded than the leeside and the ratio is almost 3:5. The outrigger is attached to the weatherside--on the Philippines batangas--and is a strong tree trunk; on the end rest two transverse beams, which are 8-10 feet outside of the canoe. On the leeside there is a platform outside of the dollboard gunwales and it is formed of long poles; on this platform a cabin--a bamboo construction--is placed. This little hut resembles a large basket and in it provisions, freight, and sometimes passengers are kept. The crew is generally crowded together in the hull of the boat. The mast usually has a height of 22 to 24 feet and is not planted on the keel, but on the gunwale of the weatherside. It

is kept in its position by stays, by means of which it may be lowered if the velocity of the wind requires it. The sail is made from very fine mats and is almost triangular; it is stretched between two bamboo poles and at each corner is manipulated by lines, halyard, tack and sheet. [128] The rudder is not at the stern* but on the leeside and has the shape of a paddle; the Carolinians say that it does not only serve to steer the canoe but also to keep it straight; the latter proves the skill of the person steering and requires a good deal of dexterity. It is difficult for navigators to establish a clear picture of this in their minds, but it is probable that we should believe the Carolinians. It is not unlikely that it is their intention to sail against the wind (in den Wind anzuluven?) when it becomes stronger, so that the lateral pressure on the sail may be decreased. In any case a good deal of experience is needed and all possible care and attention in order that the canoe will not capsize or be flooded over the leeside gunwales. Ten or twelve persons may stay on board and most of them sleep in the hull of the ship. They fill the basket with coconuts, and if they have a passenger who is not a Carolinian, he, too, is put into it. They loosen the anchor ropes, set sail and go out to sea. The sheet is never belayed: all day and all night during the entire voyage the person steering must hold it regardless of how long the boat is out sailing. Some of the steersmen have assistants on their long voyages. When he lets go of the sheet, and the boat capsizes, the crew has to swim like

*The meaning is that it is not all the way at the stern like our steering rudder.

the basket with provisions. The steersman without help re-establishes the balance of the boat; if the equilibrium is lowered on the weatherside the canoe is put back into position almost by itself and little aid is needed. Then the crew goes back on board, catches the basket, and the voyage is continued.

4: Krämer--128 (1909) 1937 Woleaians
116, 502 Lamotrek

Thus the ships sail across the wide Pacific. They take their course by the sun, the stars, the direction of the wind and that of the currents. If the weather is bad and the sky is overcast for a few days, they haul in the sail and are ready for the coming storm. When the storm has passed, they need three days to sail eastward and make up for the time and distance they have lost. Then they make their observations: they fill a bamboo pole and observe the stars at the zenith and from them are able to calculate the position of the boat. Accordingly they are able to take their course. Naturally many of them are lost.

4: Krämer--128-132 (1909) 1937 Woleaians-1-5
116, 502, 821 Lamotrek

At a meeting of pilots, presided over by Arrumiat, the captain fixed the lines of their compass cards. On the table in the cabin a figure was laid out with the aid of beans and the captain copied it on paper as well as possible. "When I thought that I had set up the wrong figure by the choice of my points and wanted to improve it and to make it into a more perfect quadrant I was not allowed to do so. When I repeatedly rounded the corners of the square figure I was requested to leave it as it was and for that reason it must be accepted in the condition it is."

They divide the horizon up into four quarters or perhaps better into two semi-circles: the [129] eastern and the western, Uebuel* is the name of the Polar Star and Mailab** is Orion's Belt. The three points which are meant to represent east and west are all called Mailab and Tubule mailap. None of the three has a special name, but only the general term for all of them is known. It is noteworthy that there is no term available for East to North or West to North. On their compass card the corresponding points are North to East, Northeast to North and Northeast to East, but East to North is not included; the place for it remains empty. The same thing happens in the four quadrant, although the points of these angles seem to equal ours. Their third quadrant resembles the fourth, but the second does not bear similarity either to the first or one of the

*Hambruch on Elato: uĭluĭl
** Hambruch: ŭliŭl; Altair, mai i lŏp.

others. Their first quadrant is divided into 8 parts, for Tagale mol corresponds to NE; of the eight only seven are marked and have names. The others are not divided up evenly but are arranged in the manner shown in the figure. I was unable to find an explanation for this peculiarity.

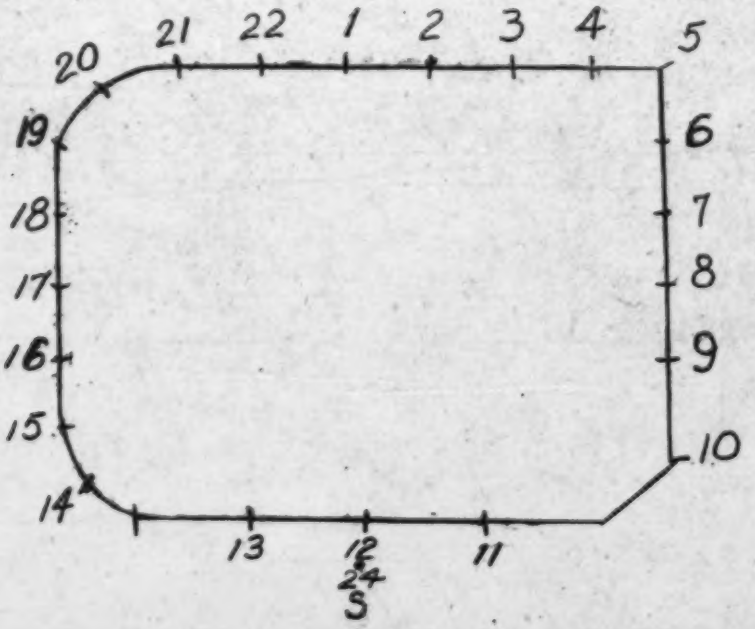

Fig. 66 Compass Points of the Carolines according to Sanchez

4: Krämer--128-132
116, 502, 821

(1909) 1937

Woleaians-3
Lamotrek

Compass points of the Carolinians, Sanchez 1866, Figure 66	Record by Krämer, 1909.	Compass points of Ikeram on Pollap with the number of little stones.
1. Mailab Ueleuel	1. volevol iefang N.	1. volevol, star fümaket from Sog to Póloat [130]
2. Tagale mailes pelevant	2. mailap ále fang 15° (little bear)	2. mailűpélefang
3. Tagale olego	3. volégo 30° great bear	3.
4. Tagale iguelie	4. űgulűg 36° Cassiopeia (island of Pikelo)	4. ugulik
5. Tagale mol.	5. mäl 51° Vega	5. mol
6. Tagale mangariguec	6. magariger 63° Pleiades	6. moiriger to Póloat, Tamatam
7. Tagale ul.	7. tagalul 73 1/2° Aldebaran (Island of Goteu)	7. un
8. Maitab	8. mailap 81° (Sëtoval, Poloat, Djug, Rálug, Falepei, Gadjau)	8. däl mailap voyage to Botelés (ku.), from there to Truk by un

4: Krämer--128-132 116, 502, 821	(1909) 1937	Woleaians-4 Lamotrek
9. Tagale eliel	9. tangali elüel 88° Orion Gürtel Orion's Belt between 8 and 9 Atair 99° sarabol Raven 68°	9. a liel
10. Tagale lumur	10. tumur 64° Antares (book by Faroilap) metaru (2 eyes) 52° Scorpion	10. tumur voyage to Póleat return by mõl arebol mareg galu
11. Tagale liup	11. tagal lup 27° (Pikeram from Sog, back by 3.) medje meiet (medj in between)	
12. Mailab delub	12. volevol iaur S. medje-meitol	12. volevol to Sog galu mareg arebol

4: Krämer--128-132 (1909) 1937 Woleaians-5
116, 502, 821 Lamotrek

13. Tubule liup	13. lupu metaru (Pikelo back by)	
14. Tubule lumur	14. tumur sáraboi	14. tumur
15. Tubule eliel	15. tubul elüel	15. e liel
16. Tubule mailab	16. tubule mailap W. (Ifaluk, Volea, Sorol, Ngolu)	16. túrun (tóron setting) e mailap
17. Tubule ul.	17. ul (7)	17. toron un
18. Tuble magarigueo	18. magariger (6)	18. moériger
19. Tubule mol	19. mël (Faroilap 5.)	19. mõl
20. Tubule igueli	20. ugulüg (4.)	20. ũgũlik
21. Tubule olego	21. voelëgo (3.)	
22. Tubule mailab pelevant	22. mailapalefang (2.)	22. mailũp elefang dolel fũmáket
23. Ueluel = N.	23. volevol	23. volevol fumaket
24. Olelup = S. [132]		

The reporter cannot recall the names of the stars of the unknown points in the lower section. There existed some analogy with the upper points.

4: Krämer--149 (1909) 1937 Woleaians-1-2
116, 502, 776 Lamotrek

On Lamotrek Zelang is called Sëlang and is considered the inventor of the figurehead, its shapes and is one of the five assistants of Lugeileng and the carpenters; the other four are:

2. Semălegóror, the guardian of the form, of the outrigger, the planks; he draws and marks the lines, speeds up the work. Perhaps he is identical with Semágor the brother of Morva Feis in story 2. . .
2a. Semadjek looks after the thwarts, the ebĕp and fáraf and he helps with them.
3. Ligadjălap or Ligĕdjilab, the painter, takes care of the paint (lap), the line and the cement.
4. Simalĕgodjuát the "turner," from godjuat "to turn over" does the first rough work on the tree trunk in the bush and he checks on how the wood can best be used.
5. Meseîseit improves the work of Sëlang with his fine eye (mes).

In addition, Hambruch mentions Alülemez who helps the men with the caulking so that the boat will prove water-tight. In general he is responsible for the safety of the canoe, protects it from breaking and helps with repairs.

Above all these ranks Lugeileng. He hovers over the place of construction and his people execute the work. His dwelling is Falesidj* in heaven.

*sidj is supposed to be the word for bamboo on Yap, but is not found in Müller's book on Yap.

4: Krämer--149 (1909) 1937 Woleaians-2
116, 502, 776 Lamotrek

For the voyage itself Paluelap is important because he is the "great pallu"; he is mentioned principally in connection with Pollat. According to Hambruch he married the woman Ilagaiidjor on that island and from her learned all about navigation and for that reason Pollap leads all other islands in that art.

4: Krämer--191
116, 502, 721, 411

(1909) 1937

Woleaians
Woleai

[VMM: James Wilson said of the natives in 1797]: They handle their boats with great skill and sail without fear from island to island. From this fact we concluded that hostilities and wars are rare and that free movement would thus be possible; this idea is substantiated by the lack of weapons of the islanders, who have none, with the exception of a sling.

4: Krämer--195 (1909) 1937 Woleaians
116, 502 Woleai

L. H. Gulik in the Nautical Magazine of 1862 speaks of Wolea--Ulie: he says that in 1788 a native had sailed to Guam, a distance of 600 nautical miles, and that the canoe had arrived safely.

L. H. Gulik mentions a population of 600.

4: Krämer--250 (1909) 1937 Woleaians
116, 484, 502 Woleai

The boats of the Oleai islanders generally sailed only to Feis [VMM: for trading], but occasionally they went to Mokemok (Ululsi) and Yap. They remained on Feis for a month or two and finally sailed back when a good wind came up.

4: Krämer--271 (1909) 1937 Woleaians
116, 502, 643 Woleai

Navigation

When a chief wishes to go on a voyage, for instance to Feis, he tells his people to get a boat ready. He himself, before setting out on his voyage, uõfalū, spends a month in the fal'lap, which women may not enter. Here he also spends five months upon his return from his first voyage, one month after his second voyage and half a month after the third; after the fourth this period of time has been cut down to five days. No seclusion is necessary after additional voyages. In outside places no taboos are observed. This rule does not apply to fishermen.

4: Krämer--272 (1909) 1937 Woleaians
116, 502, 821 Woleai

Prerequisites for a Successful Voyage to Feis

favorable seas, djeger ali ēle métau
favorable winds, djeger ali gūi (gūi, month of August)

during the good season, murilíefang, which is the name for the monsoon period at the end of the gui month. At that time, the star māl (Sirius) is visible in the sky and in the north the ūgelík is seen.

When e álimeto appears in the morning sky, the wind is favorable (on the return voyage it is the gáp, Spica and the eramoi=aremoi, Arcturus). Unless these stars are out, the sails are hauled in and the canoe is left to drift until the stars become visible once more.

The voyage is divided into stages, gátag; a certain number of them apply to one course. The first gátag, for instance, is determined by the period of time needed by the canoe to sail out of sight of the island; it is checked by a member of the crew who climbs the mast for a better lookout. The first course by the ūgelik lasts until the fourth gátag (northwesterly direction); the second course is taken by the constellation magëreger, the Pleiades, and amounts to only one gátag (west); the final course is taken by the māl and it includes only two more gátag (northwesterly).

4: Krämer--272 (1909) 1937 Woleaians
116, 502 Auripik

The voyage from Woleai to Arurpeg (Aurepik) includes four gátag [VMM: see 4: Krämer 272] of a course taken by the tubutumur, the setting Antares.

The voyage from Oleai to Ifaluk has three gátag [VMM: see 4: Krämer 272] and is taken by the star ëliol, the Belt of Orion (E); if the wind is favorable, the distance may be covered in 8-12 hours. (First gátag, Oleai is visible; second gátag, sailing on the high seas; third gátag, Ifaluk is sighted). The voyage from Ifaluk to Lamotrek is made by the constellation ul, the rising Aldeboran, and is divided into five gátag. Three gátag are taken by the tagal-ügelik, one by the tagalemailap (Atair rising in the east)... and one by the tagal e golëgo.

Kotzebue, Entdeckungsreise...Vol III, page 64: course north, puc; south puilung; east, puitag; west, puitug; morning, nissur; noon, egwol; evening, eppong.

The winds and constellations here are the following:

	Wind	Constellation
N	fangilap, eangíefang	vólevol
S.	eangeaur, aurilap	tágalup rising
		magemeiat 45°
		volevol apogee [273]
		madjemeitol 45°
		tubulup setting
W	notóelap	gauár (Venus)
E	gotimei	fusidjál (Venus)
		others:
NW	lotóafang	mailap, vul, magereger
NE	gotuáfang	môl, gúgelik, volégo
SW	lotoár	mailap--lélafang
SE	gotuór	vélavel

Kotzebue: 24 rhumbs: efangalab, caululor efangeles, caululor coteafau etc.

E. éliol, sáravol, túmur, metáru, tágalu, mat, volevol

N. Kotzebue: Polar Star fissimogedigit.

moon	máram
small moon	maramatheg
red moon	edjá matal i maram

monsoon	eángugodj, eagŏteu
gotuórikom	(star tumur)
gotuáfang	(star mâi)
gŏtimei	(star mailap)
good weather	rálimei
bad weather	ralengau

Kotzebue, Entdeckungsreise... Vol. III, page 128: "On every voyage they seem to observe the rising and setting of another constellation." "The steering member of a canoe crew--according to Don Luis--places a little piece of wood, a small stick, flat in front of himself and believes that he will be guided by it, as we take out course by the compass." Apparently he lays the stick down in the direction thought correct for the course.

4: Krämer--275 (1909) 1937 Woleaians-1-2
116, 502 Woleai

Kotzebue, Entdeckungsreise... Vol. III, page 127: "The two boats which Cantova saw, together with four others were on the voyage from Faloilep (Faroilap) to Ulea when they were seized by the west wind and scattered. Most of the crew and the passengers in these canoes were natives of both the island groups mentioned, and we assume that the canoes themselves must have come from those islands. The first, larger canoe, which carried 24 persons and had three cabins, is described in all detail because of some of its strange features: "a strange canoe, little different from the type common on the Marianas."

Through Chamisso, the shipwreck of the native, Kadu, became known. He was cast adrift and floated eastward and drifted around on the open seas for eight months. "The meager provisions saved lasted for three months, and for five months they lived without fresh water, merely on the fish they were able to catch. To quench their thirst, the native, Kadu, dived deep down into the water to bring up cooler water and, in their opinion, less salty water in a coconut shell. The northeast trade-wind finally carried them to the group of Aur of the Radack island chain where they had landed in the west of Ulea. A very old man on Eap had once spoken to the native Kadu of Radack and Ralick; mariners from Eap once were said to have drifted to Radack and to have come ashore at the island group of Aur; from there they found their course back to Eap by way of Nugor (Nukuor) and Ulea. The names of Radack and Ralik were known to a native of Lamureck whom we met on Guajan. Frequently boats of Ulea and the surrounding islands drift to

the islands of the eastern chains. Five natives of Lamureck are still living in the southern group, Arno of the chain of Radack; the same fate, along the same route, took them there."

These strong changes in the current are due to the equatorial counter current which extends over an area of approximately 100 nautical miles north of the equator to the west and east. On the surface, it seems to disappear before the monsoon seas of the NE; but under the surface it is active with elementary power, especially at times when calms make sailing impossible. That means that boats north of the line may drift from the extreme west of the Carolines to the Ralik-Ratak Islands.

Many additional shipwrecks might be listed but they are exceptions due to irregular weather conditions and wrong currents. A report of Mertens proves the reputation of the Carolinians as navigators as early as 1800. Mertens tells us that on Oleai the captains of native boats had shown letters to foreign visitors which had been given to them by white captains in order that, when the occasion arose, they might take them to Governor Don Luis de Torres on Guam.

Cases of ships driven off their course are known in large numbers.

6: Senfft--55
116, 502, 778

(no date) 1905

Woleaians
Woleai
Lamotrek

Like many European sailors, these native seafarers are superstitious. Thus it was the custom formerly that a talisman for the wind ("Windmann") was taken along for every expedition. This lioss was a figure made of baked coral limestone which represented the upper part of a man's body; four spines from the tail of ray formed the legs, and a coconut leaf was wound around the neck.

11: Born--177
116, 502

(1903) 1904

Woleaians
Woleai

It frequently happens during stormy weather that a canoe is overturned...In that case, some of the men hold on to the food supplies, coconuts, breadfruit pudding, dried fish, etc., while the others turn the canoe over and swing it from side to side to bail out the water. Then they sail on, although the same thing may happen again within a few hours. Fortunately, few lives are lost on these daring trips. If a canoe loses its course, it usually drifts to another island, to Ululssi, Jap or Sorol.

14: Born et al--572-573 (1907) 1907 Woleaians-1-3
116, 502, 731 Woleai

We [MR: Captain Martens] reached Oleai again on the afternoon of March 27, 1907 and returned to the same anchorage....From...[MR: about 3 o'clock] sea watch was kept because the weather did not look good. At 5:15 we dropped the second anchor. A strong swell and sea without wind came up in the lagoon; trees and parts of houses were driven by the ship from the corners of the island, torn down by the breakers; it seemed to be a tidal wave, for there was not much wind. Rapid sinking of the barometer, however, warned me to expect trouble, and also the wind and sea were gradually rising considerably.

A full fledged typhoon blew on Friday, March 29 from 7:30 P.M. on. It is impossible for any of us to describe the strength of the wind. We took [573] on deck all the anchor chains we could find on board and made moorings as necessary with the increasing wind. We saw no more of the land then, though the moon was full. One squall followed another.

It must have been about 8:30 when we began to drift; even before that, at about 8 o'clock, all the boats, the gasoline in the galvanized tanks, and all the deck ladders, the chicken house and the joiner's bench were washed from the deck by heavy waves. How and by what route we went out of the lagoon no one can say, the ship was wheeling frightfully; no one could stay on his feet. We sat in life-jackets in the saloon and awaited the worst. On deck heavy waves were hurtling across from both sides; one would have been thrown overboard immediately. Around us trees, coconuts and plants of all kinds were swirling about, some of them thrown up onto the ship. From 10 in the morning on (the 29th) the

barometer began to rise; but the typhoon continued to rage. The sails were blown out into shreds between the rudders. Only the schooner sail stayed whole. Judging from the appearance of the water we must have been already outside the lagoon at 10 o'clock; it was not possible to confirm this by sounding.

Our little ship did very well, and thanks to her exceptional seaworthiness we survived the storm. Many times the ship was thrown over 40 to 45 degrees and completely enveloped in water, but she always righted herself in a few seconds, only to be thrown over again. We used quantities of oil to calm the sea. Towards noon we realized that a great deal of water must be in the ship. The bulkhead was broken down from the saloon, and now we saw that the water was up over the machine platform. Now I ordered volunteers to the pump, for to command anyone directly would have been an outrage; the heavy waves continued to break over the deck without cease. The machine pumps could not be used, because the batteries were completely destroyed. The water had come in chiefly through the ventilators on deck to starboard. At 4 o'clock the barometer had climbed to 29. 10, the sea continued high and rough, the typhoon continued to blow in full strength. I think it can be assumed that nothing is left of Oleai, for the trees which floated by us were all very large and came from the interior of the islands.

On Saturday March 30 it was squally, but somewhat brighter. I was not able to determine the ship's position, for the sun did not come through. In the afternoon we cleared out the hold, of necessity, and found there some dry rice. At 2:30 the corpse of

a native floated close by our ship on its back. The wind now declined steadily; the barometer rose slowly. There was still a heavy sea. On Sunday at noon I held a conference with my officers, in the course of which we decided to go to Saipan or possibly to Guam. For it was not possible to get to Jap, because the current was too strong towards the northwest and we did not have enough sail surface. The engines were not damaged and possibly usable.

From April 1 to 4 we had moderate weather. At daybreak on the morning of the 4th we sighted Tenian and Agiguan. We sailed and steamed towards Garapan. Shortly we sighted Saipan. At noon we anchored with our kedge-anchor in Tanapag harbor.

28: Spiro--41-42
116, 463, 502, 341

(1947-48)1949

Woleaians-1-2
Ifalik

"The arts of the palu [WPM: navigators] and zenap, [engineers] were both supernatural dispensations, according to Ifaluk tradition, having been taught by 'gods', and were then handed down orally from generation to generation. These arts are taught to an apprentice over a considerable period of time, by the practitioner, for which instruction he receives gifts of lavalavs, skirts, tobacco, food, and other valuables. Though there is no hard and fast rule both these arts usually run in families, in the widest sense of that term, a practitioner giving preference to his own bilateral relatives, as well as to his in-laws. For example, the palus are Tom, his brother, his wife's brother, a distant kinsman, and two whom Tom is training, his son, and his sister's son. The Palu and the Zenap are among the most respected men on Ifaluk, and their offices are aspired to by the young men. In the Bavilais Moral Ideology Test a significant number of young men, when asked what they would like the most, answered that they would like to be a palu and/or a zenap.

That these two crafts are highly respected should occasion little surprise. Almost any adult male knows how to construct a house or a small canoe, or how to navigate a canoe in the open seas around the atoll. But the construction and repair of a canoe-house, or the navigation of a canoe on an overseas trip requires a highly specialised skill, which only the specialist possesses. The need for great skill becomes obvious when one

considers the engineering principles that are necessary for the construction of a large structure or the knowledge required to sail as many as hundreds of miles over open sea, without aid of a compass or navigation chart, let alone Radar or Loran. (5) When any such task is to be performed, therefore, the specialist is called in, and payed for his services with lavalavas, rope, and food.

A few men have acquired skills in all these fields. Tom, for example, is a navigator, as well as a canoe carpenter and structural carpenter. This is unusual, for there are some who are canoe-carpenters, but who are not competent to build or repair [42] buildings, and there are very few who are navigators as well as carpenters."

"5. The skipper of the LST that brought us home, informed me that his Radar was not working on his trip to Ifaluk, and he was worried lest he not find the atoll since the slightest deflection of the needle of his compass would cause him to by-pass the island. The native navigator has only the stars, sun, moon, currents, and physical signs, such as reefs, flying birds, and schools of porpoises, to guide his directions."

28: Spiro--74-75
116, 776, 782, 502

(1947-48) 1949

Woleaians
Ifalik

"Aluluei is the recipient of the io-io when an ocean voyage is undertaken. As [75] the canoe leaves the lagoon and enters the ocean two coconuts are dropped overboard for Aluluei, and the navigator says, 'Look out my canoe, no drift away; wind and rain no take off.' But also offered to him are breadfruit, taro, and a new lavalava. These, however, are only symbolic offerings, since the food is consumed when the destination is reached, and the lavalava is brought back with the canoe, to be worn.

The io-io for a canoe journey is not the only ritual performed. Before boarding a canoe for an overseas trip, one of the sailors beats the water with a coconut leaf, so that it will remain calm. Then, the captain takes a coconut, and while asking Paluelpa for a safe trip, he strikes the prow of the canoe on all sides with the coconut."

35: Choris (Iles Radak)--17 (1817) 1822 Woleaians
116, 159, 502 Woleai

We were convinced that Kadou was well-versed in a knowledge of the stars, but he preferred our compasses because he saw that even in foggy and cloudy weather, one's course could be determined with this instrument, while the island inhabitants, having only the stars to guide them, are at a great disadvantage when they do not see them.

41: Bates & Abbott N-5 (1953) 1958
OR21 Woleai OR21
Ifaluk

and the photographer is apt to be much resented. Yet people like to see the pictures. I never could see that the Ifalukians minded my photographic habits. They tended at first to stop work and pose when they saw me with the camera, but they quickly got the idea that I wanted them to continue working without paying any attention to me. The kids were particularly cooperative since (it was Ted's idea) I always had a pocket full of hard candies for distribution.

The people from Satawal left the next morning, Monday. I forgot to mention that when we arrived on Ifaluk, we found we had been preceded, a few days earlier, by a set of visitors from Satawal, another atoll about 150 miles to the east: three of the big ocean-going canoes, carrying thirty-seven men and boys, two women, two young girls and two babies. They were making a round of visits to the islands of the area in the traditional style, and during their stay on Ifaluk they were guests of the community.

Here in the Western Carolines the knowledge and practice of navigation with ocean-going canoes persists, while it is only a dim memory in most parts of the Pacific. Here too it will surely and perhaps promptly disappear, since it is, by any reckoning, a hazardous affair. The palus, the captain-navigators, of Ifaluk were all old men, and few of the young men seemed to be learning the art. The young men that we questioned had all travelled rather widely among neighboring atolls—but mostly in trade ships, or in the course of being moved about for labor by the Japanese during the war. Yani, for instance, who had travelled a great deal in ships, going to Yap to work on the airstrip, and to Palau for the start of his teacher education, had made only two canoe trips—both to nearby atolls—and he had no interest in further canoe travel.

The navigating methods of the Polynesians and Micronesians are not too well understood, and no European has ever accompanied them on an ocean voyage—or at least no European has ever written an account of such a voyage. Ted, in consequence, wanted very much to go with the Satawal flotilla which was heading next for Elato, some fifty miles to the east. Ted pointed out that while the trip might be hazardous, it was surely no more hazardous than driving on a parkway in the United States on Sunday, which millions of people did with no

41: Bates & Abbott N-5 (1953) 1958
OR21 Woleai OR21
Ifaluk

123 Ted dealt out his forty-eight cans of beef as a going-away present.
[227] The chief palu acknowledged this with a short but elegant-sounding speech.

We rowed out to the pass to watch the canoes put up sail when they had passed out of the lagoon—a pretty sight. Three sturdy canoes
[502] starting out confidently across the Pacific to hit another tiny atoll—perhaps no staggering distance away, but still something to find without instruments.

41: Bates & Abbott N-5 (1953) 1958
OR21 Woleai OR21
Ifaluk

123 depths. The lagoon deepened rapidly, but there were areas, even in
006 the center, where it was only thirty or forty feet deep, and the shadows
[133] of coral heads below could be made out.

Presently the water began to shoal again, as we approached the
502 reef. For a while the boat could be maneuvered through the sandy
226 channels among the coral heads but all hands had to walk across the reef itself while the boat was pulled through a narrow, shoal, "canoe pass" which, although only a few inches deep, was clear enough of coral to enable the canoes to be floated across the reef.

123 I was wearing alpargates, South American canvas sandals, excellent
133 for rain forest, but no good for coal reefs—this was the last day in the life of those sandals, and I had to use great care to make them last even for the walk across the reef. Yani and Bakal were managing nicely in their bare feet, which showed the incredible toughness that the human hide can reach, but even they were walking carefully.

It was something over a thousand feet across the reef. On the far side, on this still morning, there was only a gentle surf from waves averaging only a foot or so high. This was the lee side of the atoll, in terms of the trade winds, but at this season when the trades were not blowing and when the rain was often from the west, the breakers here could be very high, a pulsating line of white on the horizon from the view point of the Fan Nap.

The BWUP was pushed out beyond the breakers and boarded again.
[136] Here, outside the reef, was the shark zone, but none were seen all day. Yani said one of his relatives had been attacked by a shark in this region, but had saved himself by pulling off his loin-cloth and covering the eyes of the shark as he charged by.

226 The reef shelved off gradually and details of the bottom could be
133 made out clearly in twenty-five or thirty feet of water. The bottom was solidly encrusted with life—corals, coralline algae, sponges and the like—except for the narrow, smooth "surge channels," kept clear by the rush of water along the bottom returning from the surf. They were like ravines along a mountain front.

226 The canoes started playing out the coconut-bedecked rope, finally forming a huge semicircle out from the reef. The rope was weighed down with coral-block anchors and attached to each of the regularly-

41: Bates & Abbott N-5 (1953) 1958
OR21 Woleai OR21
Ifaluk

Katelu where Maur's spirit lingered; there was a tiny, thatched "god house" in the Valul household area on Falalap; and an immaculate, sanded circular altar as part of the Weluar household area. We called Arueligar the "high priest" because he had the highest ecclesiastical authority on the island, officiating at the few religious ceremonies we observed. Husky, handsome Truesai was his designated successor.

Ted, both in 1948 and in 1953, devoted much time to collecting notes on religious beliefs. He felt that these beliefs were steadily weakening, that he could notice a difference in this respect between his 1948 and 1953 visits. The gods, however, were still with us in 1953; alus, spirits, who haunted certain places, governed various natural events, and interfered for good or evil in the affairs of men. Ted collected a list of nine high gods, and of dozens of lesser spirits. He found, for instance, twenty-seven different alus concerned with different matters in connection with navigation and canoe building—though these, to be sure, are basic activities, much subject to divine guidance in any maritime culture.

My impression, however, based mostly on Ted's writings, notes and comments, is that the Ifalukians were far from having an organized theology. The accounts of divine affairs that Ted got from Arueligar and from the chiefs did not always agree; and most people apparently gave little thought to such matters, leaving them to the chiefs and the specialists. The alus were present, all right, but accepted as a part of the natural order of things: the spirits that every folk find in the world around them.

The vast majority of the alus were spirits of the dead. No one died while I was on Ifaluk, but Ted and Mel Spiro observed four deaths during their 1948 stay. They have described these in their book on Ifaluk: the intense preoccupation on the part of friends and relatives with trying to save a seriously ill person by every natural or supernatural means, the nightly wailing chants, the great seriousness surrounding possible death, and the abrupt relaxation of this seriousness once death has occurred, once the alus has left the body. They ascribe this attitude to the firm belief in the continuity of the soul.

The body of the dead, however, is given ceremonial treatment: the face is painted red, a new loin-cloth or skirt is put on, and then the